FEBRUARY
1960

Excavating Engineer

founded 1905

Scrapers, pushers carve pit for Air Force Titan ICBM base in Colorado. For story of nation's first underground missile installation see page 30.

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There isn't a machine built today that won't have some problems — because no two operators or jobs are alike . . . because occasionally every operator may abuse the daylights out of a machine . . . because no completely indestructible materials have yet been found.

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To find out what machines will do, it is necessary to find out what they won't do! Bucyrus-Erie engineers working on booms, for example, literally cover a boom with strain gauges — fine wire sections so delicate many are broken in ordinary handling — to find out exactly where the strains occur and how severe they are. They lift weights so far beyond capacity booms are forced to buckle. They tug away at the boom with tractors to check side loading factors of safety. Finally the material will stand no more.

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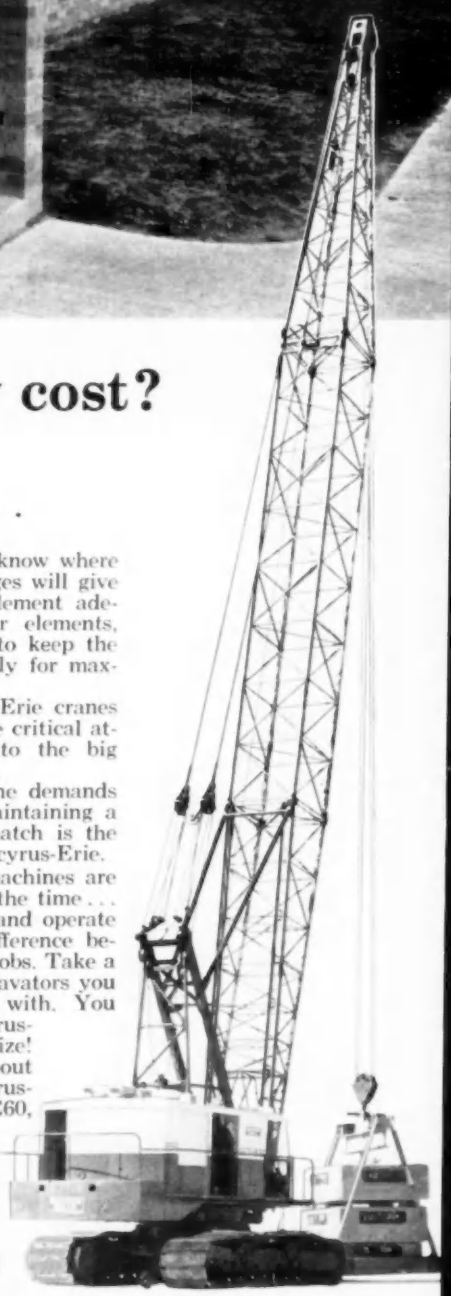
That is why Bucyrus-Erie machines are available and working more of the time . . . why they are low-cost to own and operate . . . why they make the big difference between profit and loss on many jobs. Take a long look at the cranes and excavators you have to live with — and work with. You can't buy better than a Bucyrus-Erie machine, whatever the size!

(For detailed information about any size or model, write Bucyrus-Erie Company, Department 10E60, South Milwaukee, Wisconsin.)



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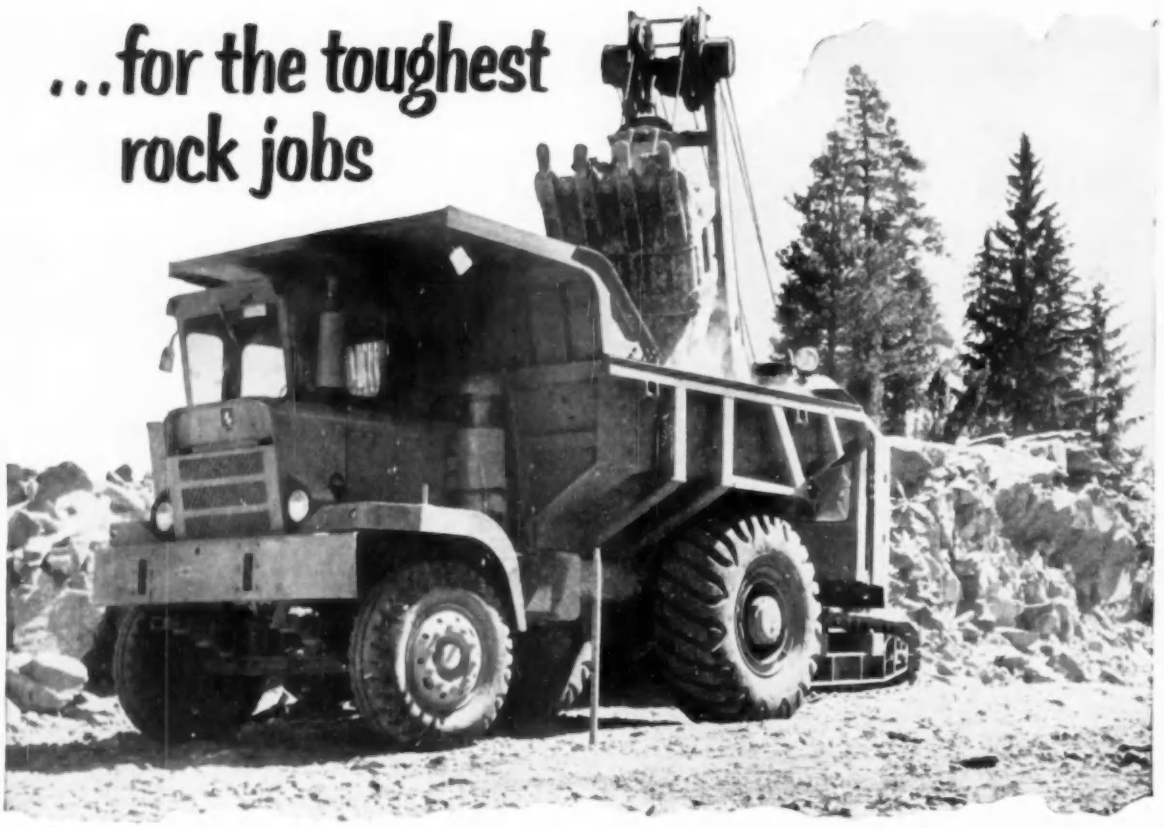

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Their success in Canada, from Quebec to British Columbia, has resulted in many repeat orders including recent ones covering three machines for Canadian National Railways Company who now own ten, and a further supply to Sherritt Gordon Mines.

Another success is a repeat order for ten "SL270" Dumpers for Canadian Foreign Ore Development Corporation Limited. This brings their fleet strength to 25 machines.

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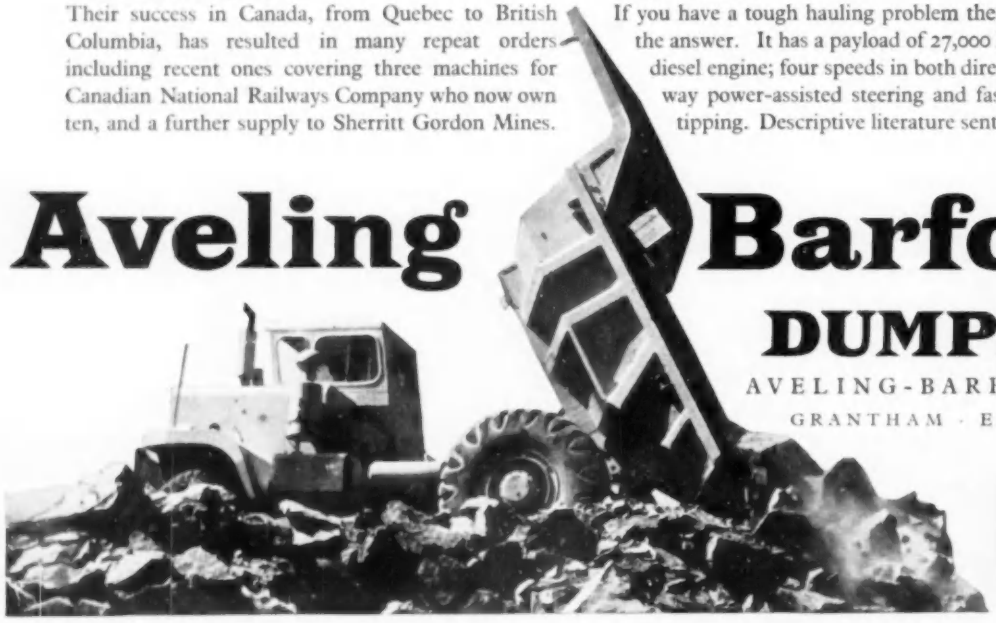

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Advertisers

IN THIS ISSUE

Allis-Chalmers	12–13, 68
Aveling-Barford Ltd.	2
Bucyrus-Erie Co.	2nd Cover, 53, 60–61, 67, 72
Caterpillar Tractor Co.	39–42, 55, 58, 4th Cover
Cleveland Trencher Co.	1
Colorado Fuel & Iron Corp.	6
Curtiss-Wright Corp., South Bend Div.	46–47
Drake-Williams Mount	62
Eimco Corp., The	69
Euclid Div., General Motors Corp.	49
For Sale (Classified)	73–75
General Motors Corp., Euclid Div.	49
Hendrix Mfg. Co.	4
Hough Co., The Frank G.	28–29
Industrial Brownhoist Corp.	52
International Harvester Co.	35, 50–51
Koehring Div., Koehring Co.	64–65
LaCrosse Trailer Corp.	56–57
LeTourneau-Westinghouse Co.	19–22
Macwhyte Co.	3rd Cover
Manitowoc Engineering Corp.	7
Marion Metal Products Co.	71
Marion Power Shovel Co.	63
Northwest Engineering Co.	5
Owen Bucket Co., The	43
Roebling's Sons Corp., John A.	6
Sauerman Bros., Inc.	45
South Bend Div., Curtiss-Wright Corp.	46–47
Stanco Mfgs. & Sales, Inc.	59
Whitmore Mfg. Co.	66

Excavating Engineer

founded 1905

South Milwaukee, Wisconsin

CONTENTS

Volume 54 No. 2 **February 1960**

Urban Expressway Has Rock Problem 8

Contractor on Buffalo's Kensington Expressway works under the handicaps of strict blasting restrictions, dust control problems and traffic congestion. Here's how Fago Brothers deal with them.

El Salvador Road Follows Rugged Pacific Coast —by Mary Saint Albans 14

Some of the problems of contractors working on a new 171-mile coastal highway include hard digging in andesite and basalt rock, frequent cloudbursts and lack of skilled labor crews.

Toughest Digging in Texas—by Ray Day 24

El Paso quarrying operation puts equipment to test in abrasive silica rock deposit.

'Cut and Cover' Job Buries Titan Missile Base 30

Scrapers open up site beneath Colorado plains for nation's first underground missile base. Deep silos to house Titan missiles are dug by efficient teams of tractor-loaders and clamshells.

Terminus Dam's Model Excavation Show 36

News from the Field 44

Engineers Stage Mock Flood Alert 44

Marsh Buggy Uses Big Tires 44

Beavers Honor Six 44

Equipment You Ought to Know About 48

Not in the Contract 54

New Trade Literature 70

Notes from the Manufacturers 76

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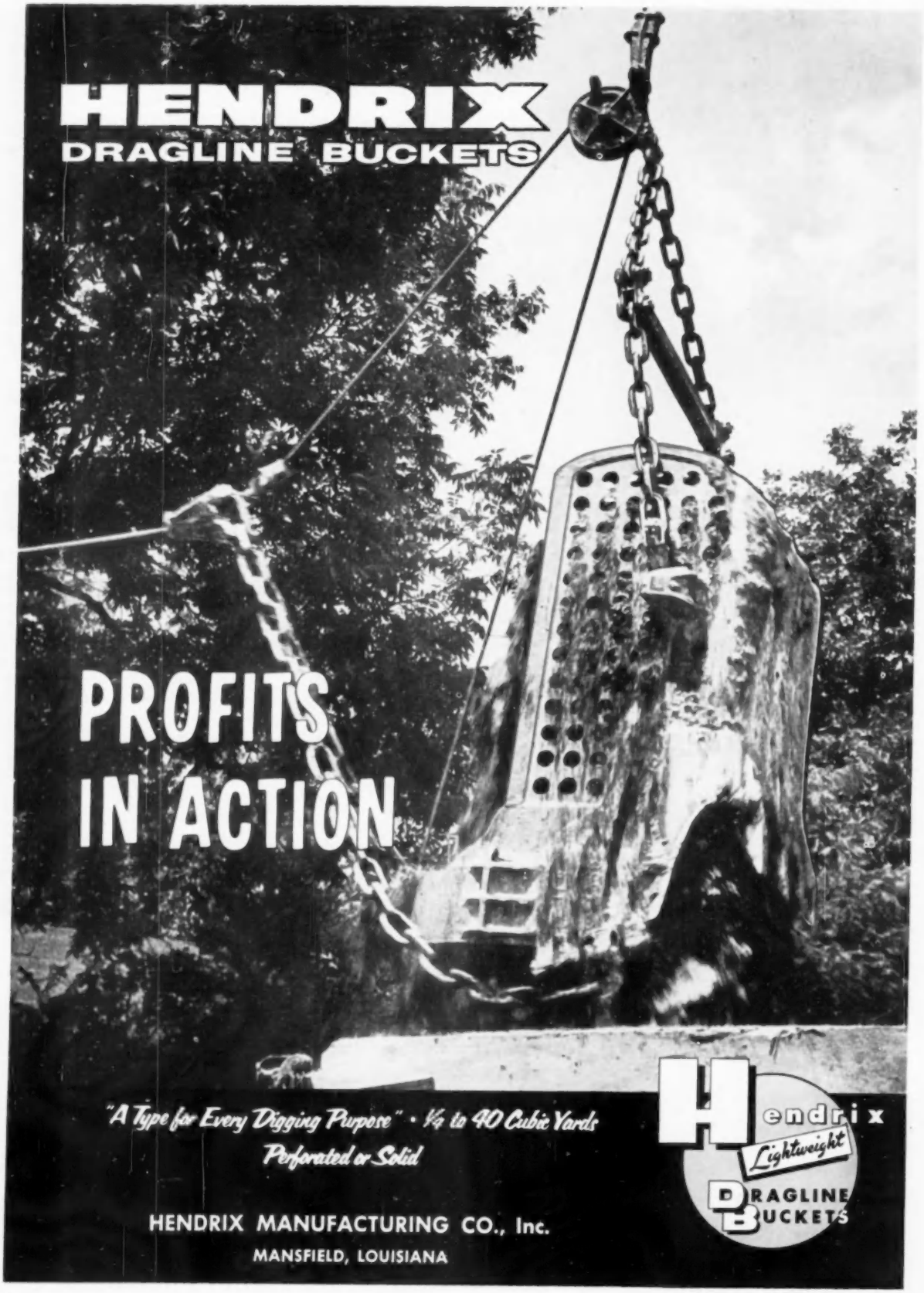
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Here is the versatility, stamina and performance to deliver—not just hour-by-hour but day-by-day and week-by-week—a high *monthly* output. Ability to stay on the job and high output are the reasons why one out of every three Northwests sold is a repeat order.

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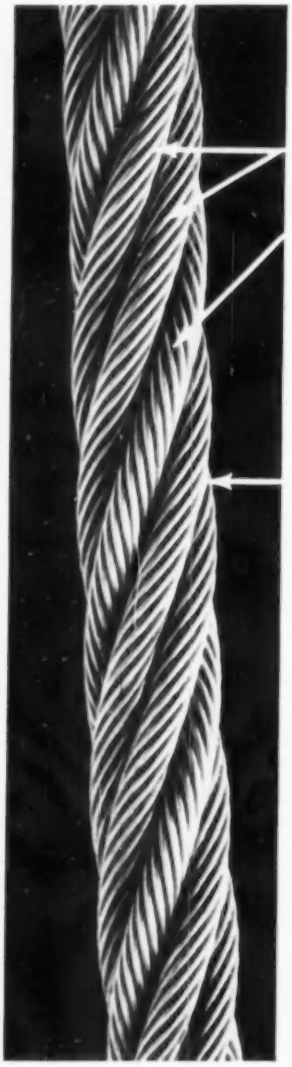

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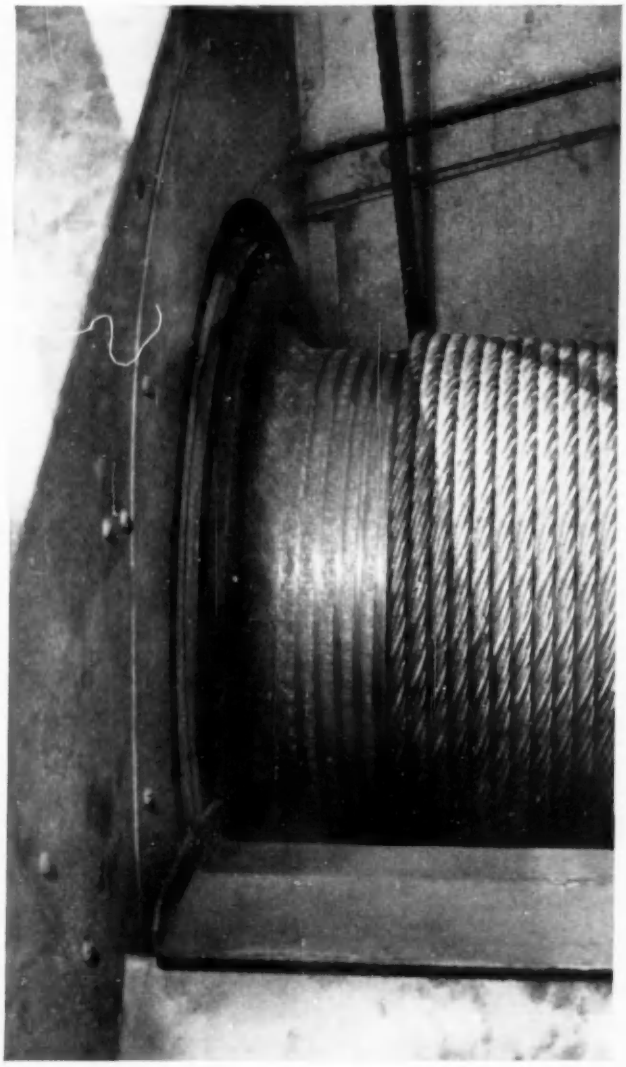
Finer wires inside contribute to Herringbone's excellent drum-winding characteristic.

Heavier outside wires in each strand have greater resistance to abrasion.



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GRAY & FEAR, CONTRACTORS

This company continues: **"We have been using your Roebling Herringbone* for about one year. We find it is one of the best ropes we have ever used, outlasting previous ropes three to one. It is good that such a reliable rope is available."**

This is a direct field quote on the most remarkable development in wire rope in years...a new concept in wire rope design. Roebling Herringbone is the regular lay and Lang lay wire rope—two-ropes-in-one rope—combining the best features of both.

Herringbone delivers extra flexibility, extra abrasion resistance, unusual structural stability, extra resistance to shock, easy operation over sheaves and drums and smooth spooling properties.

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187-TON GIRDER

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Backbone of a new triple-decked intersection for Chicago's Northwest Expressway is a 187 ton steel girder . . . the heaviest single piece of its type ever erected in the city. Measuring 126′ x 13′, this is the heaviest steel girder ever shipped in one piece by the American Bridge Division of the U. S. Steel Corp. Mounted on reinforced concrete piers, it will support 60 smaller girders. These, in turn, will support ten tracks of the North Western Railroad carried over the intersection at this point.

To handle the giant girder, American Bridge used the largest capacity crawler crane made — a 125 ton Manitowoc Model 4000. The great capacity of the big Manitowoc was a key factor on the project which entailed lifts such as 95 tons at a 25½ ft. radius. The Model 4000 was equipped with 80′ of the Manitowoc "T" section style boom for the job.

Adjacent to the job site the Manitowoc crane placed the girder on two 100 ton railroad "push" cars which carried it on a special length of track to a point alongside the concrete support columns. After lifting one end of the girder in place, the big crane inched through a passageway under a temporary construction track to set the other end of the girder in place. In every respect a tough job in tight quarters.

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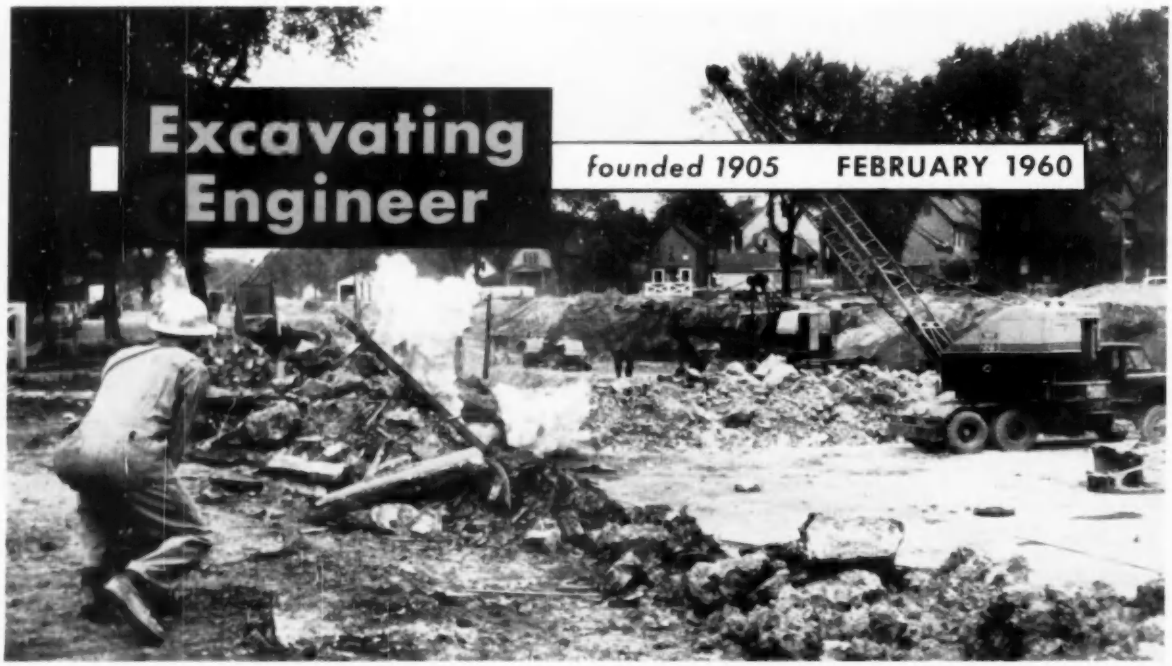


Workman leans on plunger setting off a blast that sends up a puff of white smoke. Steel mesh mats hold down flying debris.

Urban Expressway Has Rock Problem

Contractor on Buffalo's Kensington Expressway works under the handicaps of strict blasting restrictions, dust control problems and traffic congestion. Here's how Fago Bros. deal with them.

LIKE many of the nation's large industrial centers, Buffalo, N. Y., is plagued with a traffic problem. It comes into sharp focus during the early morning and late afternoon rush hours when employes of the huge steel, automotive and other manufacturing plants located there inch to and from work in an endless line of bumper-to-bumper traffic.

Buffalo has taken some positive steps over a period of years to bring relief to its resident-motorists by widening streets and building elevated bridges. And work is now underway on a system of intracity expressways designed to drain the traffic off crowded streets and away from congested business districts.

One of these expressways, now under construction, is known as the Kensington Expressway, an 8-mile, 4-lane, limited access route designed to carry that flow of traffic traveling between downtown Buffalo and the city's north and east sides.

Ingersoll-Rand D-40 crawler drills handle blast hole work for deep sewer trenches.

The Kensington Expressway was designed by New York state highway department engineers and will take approximately five years to complete. Its total cost is estimated at $45 million. Of this amount, the city's share is expected to be $5.5 million for half of the expense incurred in right-of-way procurement. The rest will come from state and federal funds on a 50-50 basis.

Construction will be done in three sections. Section 1 is a 1.73-mile stretch between Michigan and Cherry streets at one end and Humboldt and Landon at the other, a once densely populated area not far from downtown Buffalo. It is on this section that the first visible evidence of the long proposed and long hoped for expressway began to take shape.

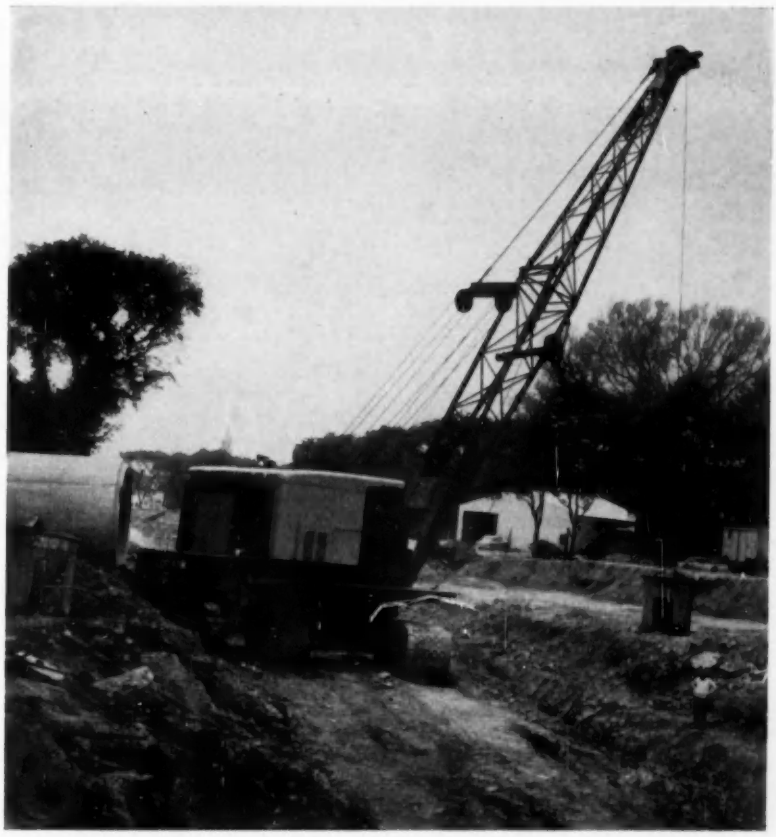
Structures Demolished

Work on Section 1 began in December 1957, when Fago Brothers Contracting Co., Inc., of nearby Tonawanda, N. Y., moved in on a $573,000 contract calling for the demolition of more than 600 homes and other structures standing along the path of the new super highway. By April 1958 the demolition work was done, clearing the way for the next construction steps—grading 8,900 feet of Section 1 between Landon and Maple streets, laying a trunk sewer to drain the expressway, relocating water mains and constructing detours around sites of future bridges that will carry vehicular traffic over the expressway.

In November 1958, lines were drawn for an assault on the grading-drainage work, and Fago Brothers again figured prominently in the bidding. They submitted low bids totaling $4.7 million on two contracts, including $2.8 million for grading and drainage on the Kensington route. This contract required 600,000 yards of common excavation and 50,000 yards of rock work along with the installation of about a mile of 24 to 96-in. trunk sewer and relocation of nearly 6,000 feet of 6 to 36-in. water main.

A second contract of $1.7 million for the Kensington Expressway outlet sewer required the installation of 4,300 feet of 108-in. sewer and 1,300 feet of 96-in. sewer placed at a depth of 30 feet. Sewer trench was shored with AP3 steel sheet piling.

Fago has until April of this year to finish the Expressway contract and



Lorain model 85 crane (above) swings concrete to the pour (below) in 1-yd. Gar-Bro bucket. Main trunk sewer pipe was seated in concrete to keep it firmly in place.

Truck crane places 12x14-ft. mat over blast holes to protect against flying debris. For added safety, each shot is limited to eight holes and 70 pounds of dynamite.

(Above) Hoe loads rock and earth from main trunk sewer trench into new Payhauler. (Below) Payloader with 2½-yd. bucket drops blasted rock into Mack truck.

until July to complete the outlet sewer.

Few urban construction projects are without problems. Always present are problems of traffic control working within tightly confined areas, and meeting contract deadlines. The Kensington job adds to these the problems of controlling dust from earth and rock excavation, hauling the excavated material to outlying dump sites over highly congested routes and carrying out the job so it causes the least amount of inconvenience to the general public. All these headaches, multiplied by the 8,900-ft. length of the job, are the Kensington Expressway project.

The contractor on such an undertaking must use ingenuity and show exceptional organizational abilities to come out on top. Fago Brothers Contracting Co. has these essential qualities. Eight months after it tied into the task, 60% of the work was completed.

"We were able to move out fast because we started the job at both ends, working toward the center with two separate equipment spreads. This gave us more room in which to maneuver and enabled us initially to put more machines on the job, meaning, of course, much higher production," said Joe Fago, who, together with his brother Tony, heads up the Fago firm.

"We thought," continued Fago, "that this dust control problem might

Truck dumps rock into Cedarapids crusher; Cat Traxcavator hauls it away.

be a big headache. But we avoided it almost completely by getting most of our common excavation work out of the way during the winter months."

At the peak of common excavation activities, Fago was loading out 3,500 yards of earth a day with a 2½-yd. shovel and a number of 1½-yd. units. These machines swung over a fleet of about 35 assorted hauling units which made dump runs to sites scattered all over the city.

The route of the expressway will carry it under several street bridges. At one point—Jefferson Street—the bed of the expressway will be 27 to 30 feet below existing street levels. Underlying the dirt layers within the Section 1 construction zone is a hard dolomite-type rock formation. To bring the roadbed to required grade level along its entire length, some 50,000 yards of this rock must be blasted and hauled out. The job is a long and tedious one because contract specifications limit shots to eight holes, with no more than 70 pounds of dynamite set off at any one time.

Blast holes are drilled with Ingersoll-Rand D-40 crawler drills sending down Timken carbide-tipped bits to depths of between 22 and 27 feet on 3 and 4-ft. drill patterns. Air power comes from a variety of Ingersoll-Rand compressors, including two 600-cfm Gyro-Flo's.

Each shot is set off with a magneto, which ignites the duPont millisecond delay caps. These in turn detonate 2 x 12-in. sticks of 60% gelatin duPont dynamite. Some 30 yards of broken rock ride out each blast. To protect against flying debris and to muffle the sound of the blasts, Fago has been placing 12 x 14-ft. wire rope mats over each shot.

Originally, Fago planned to waste the blasted rock to off-site dump areas. But contract specifications call for a 2-ft. layer of 2-in. crushed stone to cover the main sewer trunk line. Crushed rock is also needed for the laterals. In addition, certain areas along Section 1 of the expressway call for a crushed stone base. For these purposes Fago has turned the waste rock into a valuable asset, sending it through a Cedarapids portable crusher set up right on the job site, and then stockpiling the finished product until it is needed.

Lay Big Pipe

When *Excavating Engineer* visited the job, Fago was wrestling with the 96-in. pipe, laying about 200 feet of it a day. A Lorain model 85 and a Bucyrus-Erie 38-B crane were lowering the 8-ft. long, 12-ton, concrete sections into a 12-ft. wide, 25-ft. deep ditch blasted out of the rock right down the middle of the future thoroughfare.

There are about 2,400 feet of the 96-in. pipe. To keep it from rolling or pitching out of line with any slight movement of the earth, specifications call for seating it in 0.8 cubic yards of concrete per foot of pipe. The concrete comes from the Pine Hill Concrete Mix Corp., which is situated not far from the job site. Ford T-800 tandem drive trucks carrying 7½-yd. Worthington mixers make the trip in about seven minutes. The Lorain crane and 38-B swing the concrete to the pour in 1-yd. Gar Bro buckets. Between 150 and 180 yards of the concrete are placed a day.

When the main trunk is completed, the lateral lines will be connected to it. This will involve installing 12 to 48-in. tile pipe, rerouting sewers at 10 intersections and building manholes 33 feet down into solid rock. In addition, the water line relocation requirements demand valve and hydrant installation, plus a good deal of pipe replacement.

The Kensington Expressway job is under the direct supervision of Joe Fago. Mike Broderick is Fago's chief engineer; George Rethenbiller is chief mechanic.

The project is supervised by the New York Department of Public Works, of which J. Burch McMorran is superintendent. Elmer G. H. Youngmann is district engineer for the western district, and Francis J. Schork is state project engineer.

Contractor Joe Fago, center, discusses project with foreman Dick Knowles, left, and job superintendent Harry Severs.

MIGHTY... HEALTHY... POWER

Whether your choice is the 225-hp HD-21 or the 150-hp HD-16, you get from 8½% to 27% more efficient engine operation than from other crawlers.

This fuel-pinching efficiency is a fact! Your Allis-Chalmers dealer will show you actual proof of up to 27% fuel savings in the Allis-Chalmers 16000 or 21000 engines over units of comparable size. He'll tell you why they run cleaner . . . how they "sip" fuel to earn the title "industry's healthiest engines."

Six crater-shaped pistons develop 225 hp in the HD-21, 150 hp in the HD-16 . . . both at an easy 1825 rpm. Coupled with torque converter drive, they provide plenty of rough dozing lugability . . . all the power you'll ever need.

These big Allis-Chalmers tractors are built for mighty tough service. Shock-absorbing all-steel main frame, durable double-reduction final drives, certified permanent lubrication of tapered roller bearing truck wheels, idlers and rollers, and extra tough track keep them going season after season with a minimum of maintenance. Your Allis-Chalmers construction machinery dealer will be glad to show you an HD-21 or HD-16 soon. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

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power for a growing world

Waste is pushed down hillside in typical segment of El Salvador's coastal road.

El Salvador Road Follows Rugged Pacific Coast

Some of the problems of contractors working on a new 171-mile coastal highway include hard digging in andesite and basalt rock, frequent cloudbursts and lack of skilled labor crews.

by Mary Saint Albans

DOWN in lush, tropical El Salvador, contractors are working day and night to complete a coastal highway which parallels the blue Pacific from Guatemala to Honduras. The route, known as the *Carreterra Litoral*, follows the southern coast of this narrow, oblong country. The smallest nation in Central America, El Salvador has more people to the square mile, and more roads to the square mile, than any other Latin-American republic.

El Salvador is road-minded. When its section of the Pan American highway was dedicated almost a decade ago, the first to be built by any Latin country, the government immediately turned its attention to a coast highway to open up the only tracts of undeveloped land left in the republic. Not only will the road add to agricultural and land wealth, but it will bring tourists into the region. So enthusiastic is the general public about this new highway that it has been dubbed the "Boom and Beauty" road.

Engineers with surveying crews invaded the isolated terrain. They compiled maps and figures showing estimated costs and difficulties.

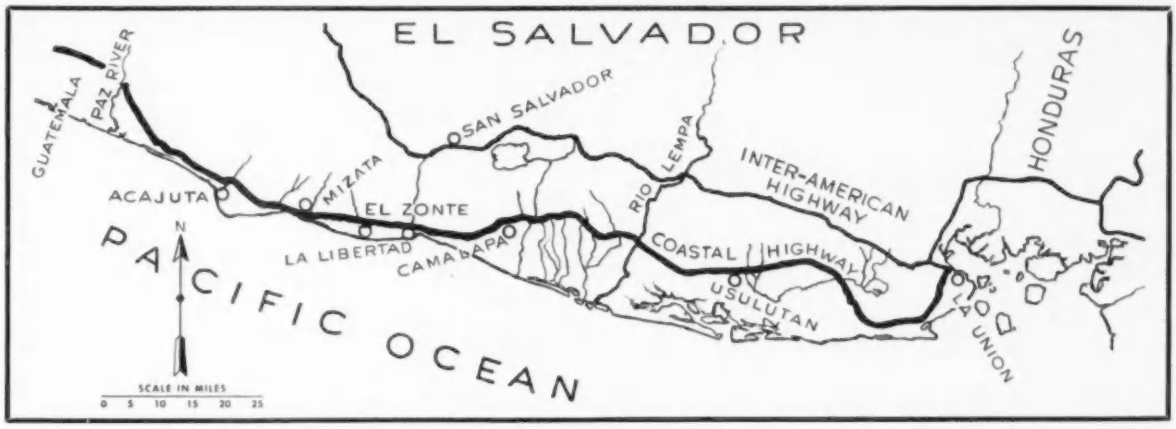
The result of all this activity was a loan from the World Bank of $11 million. Tippetts-Abbett-McCarthy-Stratton (TAMS), a well-known New York engineering consultant firm, took over the design and supervision job. With offices in the capital city of San Salvador, and camps at various construction locales, TAMS engineers work closely with engineers representing the El Salvador government and the contracting companies.

Begins at Border

Northwestern terminus of the coastal highway will be at a bridge spanning the Paz River on the Guatemala-El Salvador border. The bridge itself is to be paid for by both countries, but Guatemala has jurisdiction over its engineering and construction. Beyond the bridge is Guatemala's *Carretera Pacifico* which parallels the ocean to the Mexican border.

Contracts for the first 9.9 miles southeast of the Paz River had not yet been awarded when we visited the project. The next 18 miles were being built by Layco Co. of San Salvador. The 49.7 miles between Acujatla and La Libertad, said by some engineers to be as difficult as any stretch of road in the world, is being built by Constructora El Aguila, S. A. de C. V. de Mexico. G. S. Rinehart, senior engineer for TAMS who master-minded a tough over-the-Andes road in Bolivia, declared he has never experienced worse going.

Straight-up cliffs of andesite and basalt fractured and distorted in all directions, with a good percentage of tuff here and there, provide extraordinarily rugged rock excavation. The excavation total is leavened only by 10% dirt, usually found in sea-level areas. Engineer Cid Miranda, superintendent of El Aguila's El Salvador job, says that ¾ of a pound of dynamite is needed to move a cubic meter



(1.3 cubic yards) of rock, and that drills at their best can never manage more than 70 feet in eight hours.

There are five tunnels measuring a total of more than a mile in length. Twenty-one rivers which empty into the sea have to be bridged, and they proved an exasperating problem in the rainy season.

During the first summer, a swollen current reached over blocks of previously dry land to gulp a dozen pieces of big machinery and dump them contemptuously onto the seashore. That was in July 1956.

In June of that year the contractors had moved into La Libertad to begin an access road, quite an engineering feat in itself. They were just in time to catch the full force of the seasonal rains. There were no dirt roads, no sludgy trails, not even signs of foot-

(Above) Map shows location of new highway. (Below) Rock is loaded by 51-B after blast. Millions of yards of rock were moved by Mexico's big El Aguila firm.

El Aguila executives Ramon Marce and Jose Beltran are frequent visitors to site.

International Harvester TD-24 moves up after blast to clear work area for shovel.

steps leading to thatched huts—in fact there were no huts. These regions had been out of touch with the world since time began.

When at long last a jeep could penetrate to El Zonte, the site chosen for the main camp only 11 miles west of La Libertad, the trip took a good seven hours.

El Aguila shipped new machinery including three Bucyrus-Erie 51-B's direct from the States via freighter, but most equipment came from Mexican warehouses. On the job are three Lorains, 24 International TD-24's, 28 Euclid trucks, 14 Chicago Pneumatic air compressors, more than 100 assorted large and small drills, eight Caterpillar D8's, four rippers, 12 pumps, 10 electric plants, 10 welding plants, 19 Dodge dump trucks, 17 double-traction vehicles, 10 six-ton trucks, a Cedarapids and a Roscoe paver.

Sprawling over 25 acres or so, the El Zonte headquarters camp included offices, shops and machinery yards, cook houses and dining rooms, and a block of small dwellings for permanent employes. Scattered among tropical trees near a wide glistening beach were the big guest house and a half dozen engineers' dwellings, the latter painted a pale pink.

Mike Barrigan, resident engineer for TAMS, had his own quarters and office at the El Zonte camp as did several government engineers and their assistants. Resident engineer for the contractor is Diaz Merito who hails from Tabasco.

We drove from La Libertad to El Zonte on pavement in 18 minutes; in another month the first segment of El Aguila's work, consisting of 32.8 miles of pavement, would be done. Leaving in the early morning by jeep to inspect the Aguila project, we noted a Roscoe paver ready to work. Farther along in an ocean cove a primary and two secondary Cedarapids crushers were operating. They were fed by a Lorain dragline while nearby an Eimco loader gulped gravel to fling into trucks. The nearby beaches provided gravel and sand.

Three completed tunnels lay ahead in this first section including one 1,740 feet long, said to be the longest unlined road tunnel in the world. Fortunately, the rock does not crumble and the interior presents a pleasant hand-hewn appearance.

Estimated total quantities of excavation completed when we visited

Rock is push-loaded into scrapers by two D8 tractors after blasting and ripping. Subcontractor Jimmy Ables & Co. moved almost a half million yards by this method.

El Aguila's 49.7-mile project included 2,153,660 cubic yards of solid rock; 1,431,585 yards of loose rock; and 571,495 yards of earth. Only 650,000 cubic yards of work remained.

In the wildest, most precipitous regions several Bucyrus-Erie shovels were filling Euclids. After circling the first shovel on an access road, we almost smashed into a two-wheeled cart full of andesite rock. Mule power was bringing it to the job below where men were building a masonry culvert box.

As in other Latin-American countries where human labor is cheap, primitive methods are seen alongside modern, powerful machinery. When the former proves less costly, it is rated the most efficient.

We passed through scores of high-walled cuts which looked as if giant machetes had sliced down from the hilltop and ejected with the flat blade an oblong section as one takes out a piece of cake. The result is a rugged imitation of a Wall Street canyon.

Shovel Is King

Ahead, we waited for a dynamite blast and then watched a TD-24 make a semblance of passageway through sharp stone. Below a Cat D8 was ripping blasted basalt to ready it for shoveling. Every shovel, and in this rock terrain, the shovel is king, has in its entourage a tractor with ripper attached. Drill, blast, rip and dig is the procedure.

After a detour through jungle so deep that even at high noon no sun entered, we lurched back onto the highway to gaze upon El Salvador's biggest cut. Overhanging the Pacific, it was 157 feet deep. Ahead on the seaside yawned a chasm 207 feet deep, with water at the bottom, which was to be filled.

These 2½ miles, sublet to Jimmy Ables & Co. of San Salvador, entailed 470,600 cubic yards of excavation. Superintendent Scotty Michaelson used two D8's pulling scrapers, two D7's with scrapers, a D8 with a U-blade and a D4.

Michaelson said he worked entirely with scrapers. Dynamiting and ripping was done in such a manner that the scrapers could pick up the soft rock and haul it to the embankments. This rock was 60% tuff, a stratified volcanic material which blasting breaks into fine particles. Big machinery passing over embankments com-

Modern and primitive methods of transportation appear side by side as road penetrates remote area. GMC water wagon wets down road as ox carts take to shoulder.

(Above) Base material is processed with Cedarapids crusher. (Below) Almost completed portion of road shows typical cut with Pacific Ocean in background.

(Above) Galion roller compacts crushed rock base course. (Below) Loaded LeTourneau-Westinghouse rock dump serves as compactor when not needed for hauling.

pacts these particles into crevices and cracks, resulting in about a 20% loss which necessitates additional hauling.

Work here had commenced in the spring of 1958, but unusually heavy rains cut off access to the site for more than five months. The Jimmy Ables Co. was just finishing the grading. Next El Aguila will lay the sub base and pavement.

Farther along was the TAMS Mizata camp with Engineer Mitchell O. Baugh in charge. Working with him were several government engineers and draftsmen. Another long curve and the companion El Aguila camp came into view; it was soon to become main headquarters. At lunch on an improvised terrace were engineer Cid Miranda and Senores Jose and Juan Beltran and Ramon Marce —the last three are owners of the El Aguila firm, who spend much time on the job.

Compacting Crew

Ahead two Lorains dug rock, and as we approached the level regions near Acajutla there came a compacting crew with three Huber rollers and one Galion.

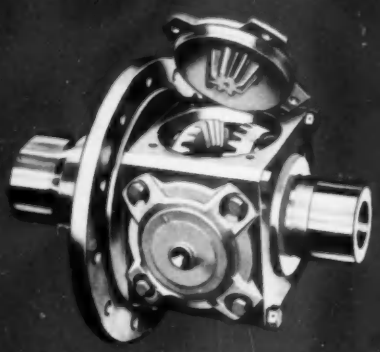
In addition to the contorted andesite and basalt rock, plus intermittent cloudbursts, contractors contended with still another problem—lack of trained workers. Foreign companies, allowed to bring in as many men as they find expedient, usually arrive with a full quota of operators and assistant foremen. These men manage to train local assistants while doing their work. Sooner or later, usually sooner, the imported workers long to return to their own countries and families. When El Aguila leaves El Salvador, they will leave about 100 trained tractor, shovel, and rock drill operators—an asset to any country's road program.

That same afternoon we returned to El Zonte and then on to La Libertad. From that port town east, worked Fisher de El Salvador, S. A., a subsidiary of Fisher Contracting Co. of Phoenix, Ariz. The 17.4 miles from La Libertad to Comalapa had been partially constructed some years back, and the present contract specified grading, base courses and paving.

General superintendent of the local concern is Guy Pickering; master mechanic is John Moylan; and the assist-

Continued on page 23

HYDRAIR*



POWER-TRANSFER DIFFERENTIAL

How these exclusive advantages

help you cut hauling costs...

DEEP V-BODY

LW Haulpak®

These 3 cost-cutting advantages..

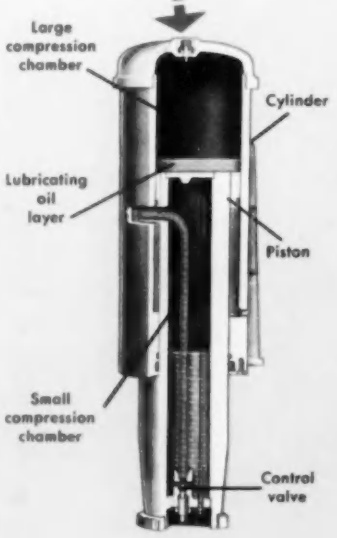
LW HAULPAK
Available in 3 sizes
22, 27 and 32 tons
290, 335 and 375 hp

1 HYDRAIR smooths rough haul roads

On LW Haulpak, you get a sturdy, simple air-hydraulic suspension system that eliminates the costly, time-wasting maintenance and repair of springs. Four Hydrair units cushion against loading and travel shock . . . compensate *automatically* for off-center loading and keep the load riding level over humps and holes.

Other Hydrair benefits:

Located high out of dust, dirt, and moisture, Hydrair cylinders permit higher ground clearance (23″) and sharper turning (Haulpak makes 180° turn in area only 44′6″ wide). The elimination of springs and conventional front axle also reduces non-profitable dead weight.



How this exclusive suspension system works

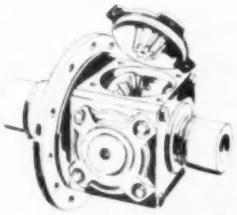
Basically, Hydrair operates like this: The upper compression chamber above the piston supports the load on a cushion of nitrogen gas and the lower compression chamber acts as a rebound chamber to snub the return or downward movement of the piston. The maximum stroke of the piston is 14 inches in the two front suspension units and as much as 7 to 9 inches in the two rear Hydrair units.

Conventional leaf springs have an "action space" of less than 4 inches, so it is easy to judge the tremendous improvement Hydrair represents as far as tire and vehicle life and operator comfort are concerned. Hydrair absorbs and cushions virtually all loading and travel shock, keeping this brutal punishment away from the tires, structure, and operator. Hydrair relieves the pounding on the road surface that creates "washboards".

..yours only in Haulpak

2 POWER-TRANSFER DIFFERENTIAL
pulls load through soft footing

This same exclusive LW differential has boosted production and cut costs for thousands of LW Tournapull® owners for more than 14 years . . . and now, *for the first time*, it is available on a truck. The power-transfer differential *automatically* puts power on the wheel with best traction, so you can haul through soft, slippery spots that bog down conventional haulers. The differential action also reduces wheelspin and tire wear.



The LW Haulpak differential works *automatically* at *all* times, is as simple in construction and as trouble-free as an ordinary differential. When one wheel tends to spin, idler pinions are automatically forced outward against friction surfaces. This slows the slipping wheel, and transfers up to 4 times its tractive effort to wheel on firmer footing. Neither wheel will spin independently until the 4-to-1 ratio is exceeded.

HAULPAK saves you money many other ways:

LESS MAINTENANCE (entire lube-check, needed only at 500-hr intervals, consists of just 3 easy-to-reach grease fittings). *POWER-MISER FAN* (cools with 20 to 25 less hp drain). *FOUR SEPARATE BRAKING SYSTEMS* (for fast stops with complete safety). *POSITIVE POWER STEER* (for faster turning, easier handling). *SIMPLE SIX-GEAR FINAL DRIVE* (compared to 12 or more usually standard). *BIG, ROOMY CAB.*

3 DEEP V-BODY gives you bonus tonnage within short wheelbase

Haulpak's exclusive deep V-body allows you to haul extra tons of material within a short wheelbase. Loaded material quickly fills all corners for big, low-void payloads. Deep "V" also provides a low center of gravity . . . gives Haulpak better stability on turns for high-speed hauling no matter how rugged the road.

In addition, the Haulpak V-body is exceptionally strong. It is constructed of high-tensile-strength steel . . . nearly 3 times stronger than steel commonly used in trucks, yet it weighs ⅓ less. Result: *You haul up to 30% more payload than Haulpak's weight.*

Bonus yardage in every Haulpak load rides in the exclusive V-shaped body. Low loading height (10'1") and large top opening (14'5" x 11") makes it easy for shovel operators to load Haulpak fast, without spillage. Heavy rubber pads provide 100% cushioning of the body against loading and travel shock.

HAULPAK LW 80...

offers new low in hauling costs,

80 tons, 100 yd capacity . . . speeds to 40 mph

Proved in strip mine operations, the 450-hp LW 80 hauls materials at lowest-cost-per-ton. Constructed of light, super-strong steels, Haulpak hauls more than 2 times its weight in payload! It is easier to handle and maneuver than 50-ton units of conventional design. Has many other profitable advantages. *Ask for complete information.*

This 80-ton HAULPAK performs at the Midland Electric Coal Company mine near Farmington, Illinois.

BIGGER PROFITS for you in well maintained haul roads

You can count on fast, low-cost haul-road maintenance when you use powerful heavy-duty LW graders. That's because LW graders work at higher speeds, complete jobs faster. Use them to build and maintain haul roads, level stockpiles and fills, improve drainage. LW graders last longer because of their 100% anti-friction drive and rugged one-piece main-frame. And you'll profit by the big 63-inch blade circle . . . the quick, easy moldboard tilt adjustment . . . rubber engine mounts . . . and full-sweep visibility. Seven models, 67 to 190 horsepower.

See color film "Revolution on Wheels"

In this 15-minute film you will see Haulpaks at work on highway construction, in copper and iron mines, and in rock quarries. You'll see why and how Haulpak moves more tonnage at big savings. Your LW Distributor will be happy to show you this film, "Revolution on Wheels".

Get complete facts on LeTourneau-Westinghouse equipment from your LW Distributor

Your nearby LW Distributor is ready, willing, and completely able to help you solve your hauling problems. He also handles LeTourneau-Westinghouse earthmoving equipment—Tournapulls, rubber-tired tractors, Rear-Dumps—and other lines of proven production tools. He is in a position to give you honest appraisal of trade-in equipment, and can assist you in obtaining helpful financing when it is needed.

See your Distributor, too, for dependable repair service and LW factory parts. You will be pleased with his prompt and efficient attention to your needs. Ask him to check your parts stock, and help arrange a schedule so his service department and yours can work together with greatest efficiency. You'll find your LW Distributor a good man to know. See him soon.

L.TOURNEAU LW WESTINGHOUSE

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L.TOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILL.

HP-2265-G-4

El Salvador . . .

Continued from page 18

ant purchasing agent, believe it or not, is pretty Mary Moylan (Mrs. John Moylan) who keeps track of about 5,000 machine parts.

Gravel was being laid, and oiling was scheduled to follow later. Completion date depends upon the rains. Local contractors had built several concrete bridges spanning what are, in the dry season, lethargic rivers. Below four of these could be seen Rex pumps, and at two bridges water trucks, called *pipas,* were filling. Seventy barrels of water a day were needed for compaction.

Beyond the small offices and extensive shops was a Cedarapids rock crusher turning out 1,300 cubic yards in 24 hours. A LeTourneau scraper brought material from a borrow pit 2,000 feet away.

Machinery on hand included three LeTourneau-Westinghouse scrapers and rear-dump Tournapulls; four Cat graders; 15 Cat tractors; and 20 General Motors trucks. Some equipment had been brought in under its own power or shipped from Guatemala, where Fisher had built a long, rugged section of the Inter-American highway.

The excessive heat was just getting into its stride, climbing to well over 90° and packed with humidity. Superintendent Pickering asserted that he much preferred the cold, rugged, isolated Guatemala mountains.

Between La Libertad and Comalapa the coastal highway was paved by Fisher de El Salvador, S. A. Compacting base material on this stretch was this Ferguson roller.

The remaining 100 miles from Comalapa to La Union, near the Honduras border, was graded earlier and it was being paved. This year the coastal highway is to be open the entire length of El Salvador.

Road Resurfaced

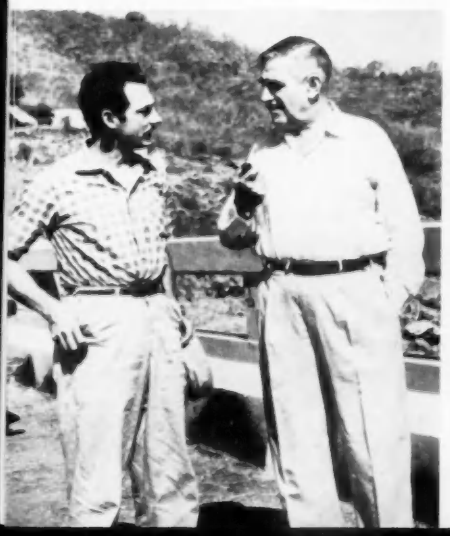
The stretch from Comalapa to Usulutan follows an existing road which was rebuilt in a joint venture project by Chambers & Farnsworth, Houston, Tex., and Johnson, Drake & Piper, of New York. The contractors applied a 2½-in. hot-mix surface. From Usulutan to La Union, through 55 miles of tropical forest and brush, three El Salvador firms—Layco, Canas and Fonseco—bid as a unit and divided the work among themselves. Manuel Valdez, president of Jose Fonseco & Co., reported that the entire stretch would be completed before the rains.

Not content to rest on its laurels, the El Salvador Ministry of Public Works is planning a new $8½ million feeder road project, which will speed up the agricultural development of this southland.

This project too has been engineered by TAMS with Rodolfo Levy van Severen of the Direccion General de Caminos of El Salvador in charge. Eighteen feeder roads will go north from the coastal highway and also south where the road juts away from the Pacific. Farmers have crowded into the regions recently opened up. Corn, coffee, beans, cotton and sugar are important crops in the area.

Already the price of Pacific Ocean beach property has advanced as much as 400%. Apparently the "Boom and Beauty" road well deserves its nickname.

(Right) Bituminous treatment is given in final phase of El Aguila project. (Below) El Aguila engineer Antonio Diaz compares notes with consulting engineer Mike Barrigan of TAMS near El Zonte.



Toughest Dig

El Paso quarrying operation puts equipment to test in abrasive silica rock deposit.

by Ray Day

(Above) Gardner-Denver drill sinks blast holes in Standard Aggregates quarry. (Below) Rock is loaded out by 38-B shovel which has handled 2½ million cubic yards.

WHEN a load of bituminous plant mix or a truck of concrete aggregates is delivered by Standard Aggregates Co. of El Paso, Tex., it's hard to believe that the clean-looking crushed rock in these mixes represents such a digging battle.

Standard Aggregates operates what is possibly one of the most abrasive, tough pieces of rock excavation anywhere in the southwestern part of the United States. To produce its 500,000 yards a year market quota, its quarry and pit equipment drills and digs quartzite, hard limestone and occasionally gouges into rock so hard it tests 99% silica. Glazed, brittle and tough, it plays havoc with the equipment which must break it out of its resting place in foothills northwest of El Paso near the city limits.

Shovel dippers, truck beds, crusher components, screens and dozer blades reflect the never-ending maintenance battle to keep production up to market demands. The frequent flash of arc welders against the night sky is proof of the difficulty of handling this material.

It has been estimated that the rock deposit is extensive enough to keep Standard Aggregates in business for at least 50 years. The deposit includes two types of material. There's a washed alluvium deposit of sand and gravel, which in ages past eroded and washed down off the mountain watersheds nearby. This makes up about 35% of production at present. There are also a number of deposits of very hard, solid quartzite and silica.

The deposit of raw material looked mighty attractive to Claude, Grady and Jack Jones back about 1954. It was that year that they, along with Jim Elliott, started Standard Aggre-

ging in Texas

gates. The expanding area to El Paso's north and east, which includes new housing developments, Biggs air force base, the El Paso municipal airport and Fort Bliss, necessitated a commercial source of aggregate close by.

Business was started around a nucleus which could be expanded as the market broadened. First units, which were brought in in 1954, included a Cedarapids crushing and screening plant, a Lima Paymaster shovel with hauling trucks, and a Barber-Greene 845 asphalt plant.

In five years that modest start has been rapidly expanded. Now the quarry and pit are served by a Bucyrus-Erie 38-B and a P&H 755-B shovel; the fleet of trucks has been tripled; a complete Pioneer rock crushing and screening plant has been added to produce crushed aggregates; and laydown and rolling equipment has been added so bituminous paving can be contracted. The business has also been expanded to include a contracting firm which takes grading, excavation and paving jobs, using in most cases materials produced by the quarry and crushers.

Equipment for use in the contracting part of the business includes eight Caterpillar D8 tractors, three single power Euclid scrapers, three Cat No. 80 scrapers, an older LeTourneau FP finishing scraper, five No. 12 Caterpillar motor graders, a 60-ton self-propelled roller, and a host of Buffalo-Springfield and Galion steel wheel rollers. It can be seen at a glance that this equipment is tailormade for light excavation and grading work in dirt to prepare subgrade and roadbeds for the paving. The main ingredients are furnished by the quarry.

Quarry is estimated to have 50-year supply of rock, mostly solid quartzite and silica, comprising one of the toughest pieces of rock excavating in the southwestern states.

The quarry operation has been streamlined over the years to weed out all lost motion, and, with the least amount of labor, to turn out an excellent crushed-aggregate product. Production starts with drilling in the quartzite formations, using a single Gardner-Denver down-hole drill

(Below) Jaws of the primary crusher at the older Cedarapids plant are driven by a 150-hp General Electric motor. (Right) Pit Superintendent Lee Hopper directs work.

Barber-Greene asphalt plant, located about 1,000 feet from quarry face, turns out bituminous mixes for many El Paso area projects.

mounted on a hydraulic positioning boom on the front end of an Allis-Chalmers HD-19 tractor. Using Gardner-Denver steel and Timken 2¾-in. tungsten carbide bits, this rig is sinking powder holes 22 to 24 feet deep.

Drill bits average 200 feet per sharpening, and are resharpened five times before being discarded.

A considerable amount of experimenting has been done with powder to get a type of explosive which will break the material out small enough to be handled by a 1½-yd. shovel dipper, and still not be objectionable from the blast and vibration angles. For the first few years, a gelatin type powder and 40% bag powder were used. New housing developments, moving in closer to the quarry, brought objections to blast shock.

About a year ago the company switched to the use of Apache 40% bag powder, which was developed originally for smooth shooting in Arizona's copper mines. By setting off these charges with Atlas Rockmaster delay caps, blast noise has been practically eliminated and vibration has been cut to a minimum. The change-over has proved its wisdom, because seismograph machines show a marked reduction in blast vibration. Complaints have almost disappeared. Small, rather than large-size shots are the rule.

Rock Loaded Out

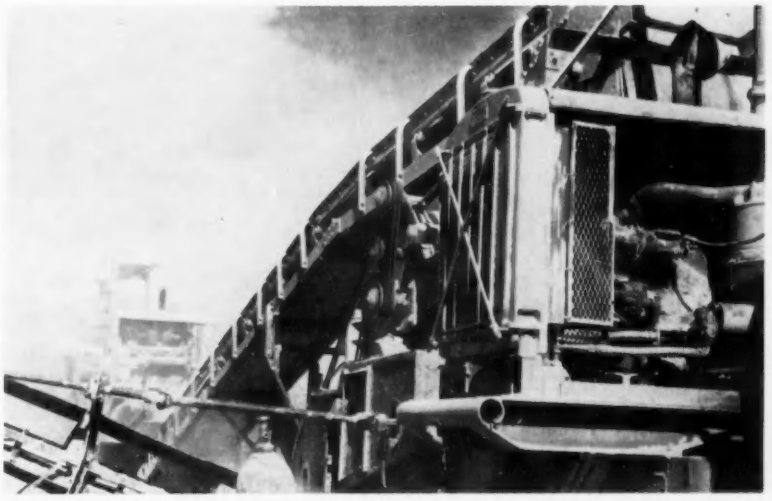
The broken rock is loaded out by the Bucyrus-Erie 38-B shovel, equipped with a 1½-yd. Esco dipper. In four years digging, the machine has handled 2½ million yards of material without requiring a major overhaul, and with no more than 36 hours of down time at a stretch for repairs. The rock is being loaded into a fleet of mixed dump trucks, all company owned, which then haul it to the plant.

Quarried rock, which is considered by far the tougher portion of the pit, is processed into finished aggregates by an all-Pioneer plant. It represents the newest addition to the crushing setup. The plant consists, in order, of a Pioneer apron type feeder, a No. 150-PRL primary crusher with a 2036 jaw, a scalping and sizing screen unit, a 143-S triple roll secondary crusher powered by a 175-hp Murphy engine, and final sizing on a 4x10-ft. triple-deck screen. This screen features a split feed, and makes 80 square feet of screen deck available to the final sizing operation.

The Pioneer plant is an all-purpose

Caterpillar No. 12 grader, part of Standard Aggregates' contracting equipment fleet, works on sub-base in highway relocation.

setup, and makes as many as three materials simultaneously. Its usual function is to make stabilized base course aggregate, and one size of crushed aggregate simultaneously. It has three bins for storage of tha; many materials, and will easily turn out 1½-in. minus sub-base rock for roads, rock screenings for chips, and ⅜-in. minus pea gravel for use in concrete mixes.



Murphy diesel engine drives a Pioneer plant, newest addition to the operation. The all-purpose plant produces three materials at once and has three storage bins.

Digs Gravel

Excavation of alluvium overburden in a stream wash just below the quarry is a non-blasting operation. Here a P&H 755-B shovel, handling a 1¾-yd. Esco dipper, digs out the bank-run gravel which runs in all sizes from sand to cobbles about 15 inches in diameter. This material is hauled by the quarry dump trucks to an older Cedarapids plant, which processes it into sub-base rock and concrete aggregates.

In its flow through this plant, the material passes through a Cedarapids feeder, a 2540 primary jaw crusher, a 1036 jaw crusher secondary, a set of 2440 roll crushers, a screening plant, and then to a 4x10 secondary sizing screen which pulls out all acceptable material. There are four storage bins on this plant. A 4x12 triple deck scalping screen over these bins can size four materials, dropping each size into the proper bin for further stockpiling or hauling away to meet market demands. Secondary stockpiling of material is kept to a minimum. In the case of the hot plant, aggregates are stockpiled for use by this unit, as needed. A Michigan 125-A tractor shovel is used in the stockpiles to load out material for the market.

The reason the many plant components have run for so long without excessive down time is the emphasis management has given to a good maintenance program. The biggest wear trouble is abrasion from the hard silica-laden rock, and after that, heat and dust are definite factors. But hardfacing remains the biggest maintenance activity.

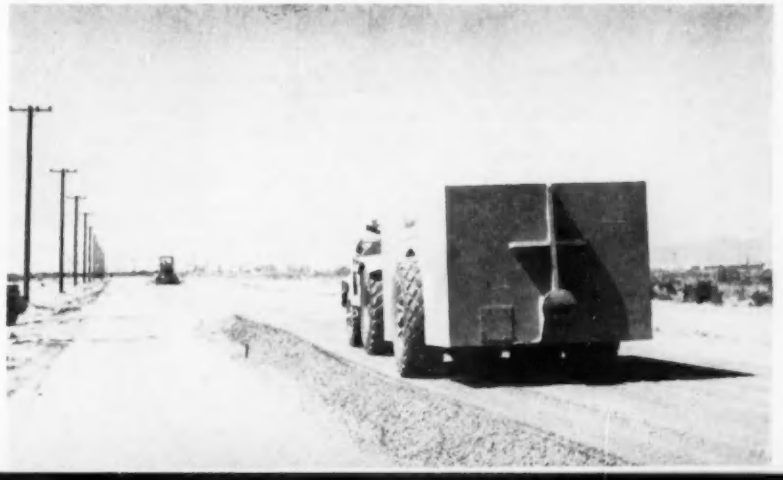
Continuous Program

What makes hardfacing doubly difficult is that few welding rods will do the best job in the hard material. Resistoloy, for instance, is a very hard and excellent rod. But if it is used entirely, it may glaze over, according to Pit Superintendent Lee Hopper. The solution has been to use about 66% Resistoloy and the other third a softer rod, such as Ranite BX, for building up between the Resistoloy. This treatment—applied to dipper lips, corner angles on dozers, roll and jaw crushers, and other units where abrasion is tough—has solved the problem nicely. But two welders are needed all night long, every night in the week, and they also work over the weekend to keep ahead.

One feature has helped the maintenance program. That's the closeness of the quarry to El Paso equipment distributors, who have good parts stocks for servicing the machines. This makes maintenance at least a little easier than it would be if the company was operating in a more remote section.

But even so, every time a truckload of bituminous mix, concrete aggregates or sub-base material leaves the yard, looking clean and fresh, it belies one of the most difficult skirmishes with excavation and the maintenance of digging equipment anywhere in the Rocky Mountain region.

(Left) Truck takes on load of aggregates at Pioneer plant. (Right) Ferguson RT-100-S roller compacts highway near Biggs air base.



H-120 PAYLOADER® TEAM

4 Huge Model H-120 "PAYLOADER" Units Were Selected For The Job

"The better balance, speed and maneuverability of the H-120 makes it a better buy than larger competitive models tested on this job," says Charles E. Young, Job Superintendent.

SPEEDS ORE-HANDLING OPERATION

for Armour Excavating, Inc.

Armour Excavating, Inc. is one of the contractors that has expanded its operations into the ore-handling field. Its share of such work has increased with the rapid growth of the Port of Philadelphia as an important iron ore handling center.

The Pennsylvania Tidewater Dock Co., at Pier 122 South, has a 4-crane ore dock capable of unloading 6,000 tons of ore an hour, which the Pennsylvania Railroad transports in cars to a number of steel mills in this part of the country. They have areas available for the ground storage of between 3 and 4 million tons of ore, the ground having been previously prepared by Armour.

One phase of Armour's ore-handling work consists of loading railroad cars with the various types of ore which have been stockpiled along miles of track. This work has been greatly expedited by the recent purchase of 4 Model H-120 "PAYLOADER" units from M-W EQUIPMENT CO., Division of Metalweld, Inc.

These "PAYLOADER" units pick up the ore from the stockpile, carry it to the track and load it directly into railroad cars. Their speed and mobility enable them to travel over this site in a few minutes. In addition, they move loaded cars along the track and bring in empty cars to be loaded. No other equipment is needed for this entire operation.

Joseph Keenan, an operator, says, "I like the H-120 better than anything I've run. It's faster, comfortable and easy to handle. The balance is perfect and the safety and visibility is tops, because of the lift arm design. The high lift and long reach let me center the loads in the gondolas as the railroad demands with this heavy ore."

The Model H-120, conservatively rated at 12,000 lbs. operating capacity, is the largest of the "PAYLOADER" line of 20 models in 8 capacity ranges. Your Hough Distributor with his complete parts and service facilities, backed by Hough field service personnel, invites your inquiry. See him today.

The "PAYLOADER" units need no 'dozer or other assistance in the loading operations, because they also do their own towing and car spotting, dozing, stockpile trimming and clean-up work.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER and PAY are registered trademark names of The Frank G. Hough Co., Libertyville, Ill.

THE FRANK G. HOUGH CO.
708 Sunnyside Ave., Libertyville, Ill.

☐ Send data on Model H-120 "PAYLOADER"
☐ Send data on smaller "PAYLOADER" sizes

Name.....

Title.....

Company.....

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City..... State.....

2-8-1

'Cut and Cover' Job Buries Titan Missile Base

Scrapers open up site beneath Colorado plains for nation's first underground missile base. Deep silos to house Titan missiles are dug by efficient teams of tractor-loaders and clamshells.

CONSTRUCTION in the space age creates new problems and requires new techniques. Meeting this challenge head-on is a team of joint venture contractors called Morrison-Knudsen Co., Inc., & Associates of Los Angeles, Calif., which is building the nation's first operational underground missile base near Lowry Air Force Base, Denver, Colo.

The missile base, sprawling over more than 800 square miles, will include two Air Force Titan squadrons each armed with nine of the 110-ton intercontinental ballistic missiles. The Titan, being developed for the Air Force by the Denver Div. of Martin Co., has a range of more than 6,300 miles at speeds greater than 15,000 mph.

The $67.5 million worth of contracts held by M-K & A call for construction of six missile launcher complexes, each with three "silos" for missile storage, fuel and equipment storage facilities, a power house, a control center, and two silos for retractable radar antennae. The various installations within each complex are connected by a network of personnel, ventilation and fuel tunnels totaling more than 2,000 feet. Entry portals and missile and radar silos will be protected by concrete hatches five feet thick.

The Titan base must be able to absorb an enemy's nuclear punch and still be able to hit back with an even greater blow. The certainty of this retaliation could be the chief deterrent to an aggressor.

The silos that will house the Titans must be large enough to provide storage and servicing space for the missile which is 90 feet long and 10 feet in diameter. Each missile silo has an adjacent propellant terminal and an equipment terminal housed in smaller silos.

The control center and power house in each complex are dome shaped structures of reinforced concrete.

Throughout the complex are massive blast-proof doors of thick concrete. The complex will have supplies of power and water independent from the outside world to enable the missile squadron to carry out its awesome mission even if the area above is contaminated by radioactivity.

Morrison-Knudsen Co., Inc., & Associates landed a contract for the first set of three complexes (Squadron 1) in April 1959 on a bid of $40.6

Titan ICBM blasts off launching pad in successful test firing at Cape Canaveral.

million. The second contract covering the other three complexes (Squadron II) was awarded to M-K & A in June for $26.9 million. The first contract called for several million dollars worth of "standardized equipment" to be used in the second complex, which explains the vast difference in their costs.

Much of the work was bid on a lump sum basis. Missile silos, without technical gear for servicing the weapons and raising them to the surface, are costing from $660,000 to $730,000 each. Each powerhouse will cost about $1.1 million and contain "standardized equipment" worth a like amount.

Major construction materials called for on both contracts include 23,000 tons of steel pipe and fittings, 12,000 tons of structural steel, 10,000 tons of metal plate tunnel liner, and 3.5 million pounds of stainless steel pipe and plate. About 200,000 cubic yards of concrete will be used.

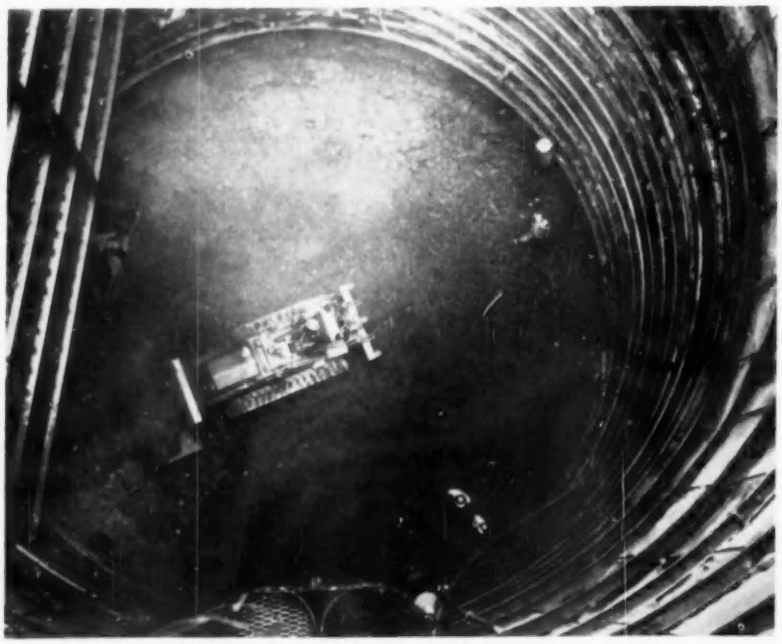
Open-Cut Excavation

Rather than tunneling into the Colorado plains, M-K & A is tackling the job as a "cut and cover" operation. The site of each complex is being opened up with scrapers to the depth of the bottom of the powerhouse and control center. The silos which go deeper are clammed. Then after the structures and tunnels are completed, the whole complex will be backfilled.

Open-cut excavation for the six complexes totals about 3 million

(Above) Cat 16-yd. scrapers use tunnel cuts as haul roads during excavation. (Below) In another complex Euclid scrapers are push-loaded in silo cut area.

(Above) Bucyrus-Erie 54-B clamshell bails out missile silo. (Below) At bottom of the shaft, a No. 955 Traxcavator rips floor and carries material to within reach of clam.



cubic yards. Shaft excavation amounts to an additional 200,000 cubic yards.

To stay ahead of the rush schedule, M-K & A is working on all six complexes simultaneously. Half of the initial excavation was subcontracted to Hopkins Construction Co., Denver, which put two tractor-scraper fleets in the field.

Working in cemented clay and sandstone, M-K has been able to push-load a fleet of six DW21-No. 470 tractor-scrapers using three D8 tractors as pushers. One 20-ft. thick layer of sandstone and shale required ripping with a D8 and D9, each equipped with Ateco rippers.

Working two 10-hour shifts per day, five days a week, the DW21s move as much as 15,000 cubic yards a day in 16-bank-yard loads. The machines are able to negotiate the 10% slopes out of the cuts in third gear, making the 1,200-ft. haul and return trip in an average of four minutes, with loading time averaging slightly over one minute.

Most of the material was stockpiled

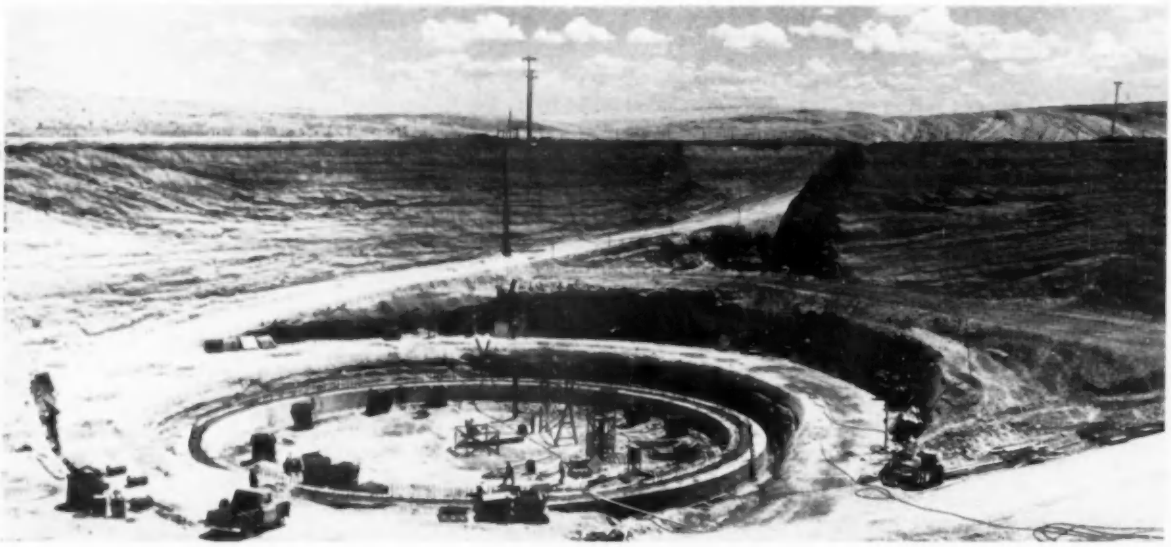
for the big backfilling job that will bury the installation for all time. The major portion of earthmoving was scheduled for completion within 120 days.

The tunnel trenches that connect the larger cut areas became haul roads to simplify traffic movement of the large earthmoving fleet in the relatively small area. Slopes in the open cuts are held at ½ on 1 or 1 on 1 with one D8 with angle dozer shaping the walls and dozing material toward the center where it could be picked up by the scrapers. A Cat No. 12 grader maintains haul roads.

From the bottom of the scraper cut, the silos are sunk to required depths with No. 955 Traxcavators equipped with rippers and some with side-dump buckets, and an Eimco 105 with ripper and overhead loader. These tractors rip the floor of the shaft and push the material to one

(Above) P & H truck crane is used to lower ring beams into silo, 54-B to hoist out dirt. (Below) Workmen install wire mesh before Eimco resumes ripping and hauling.

(Below) Aerial view of typical complex shows three launching areas; powerhouse, upper left; control center, upper center.



After scraper excavation is completed, footings for powerhouse are poured. Above is stockpile of material for backfilling.

side where it is picked up by a Bucyrus-Erie 54-B clamshell which hoists it to the surface for removal by the scrapers.

As the shaft goes down, steel ring beams are placed, backed up with wire mesh and covered with pneumatically placed concrete. After the excavation is completed, reinforced concrete walls and floor are constructed.

As a safety precaution, a heavy wooden wall divides each silo while digging is underway. On one side the Traxcavator or Eimco rips out material and carries to the other side where the clam can hoist it up without danger to the men in the hole. A woven wire fence encircles the top of each shaft, and fresh air is blown into the excavation through a 24-in. flexible tube.

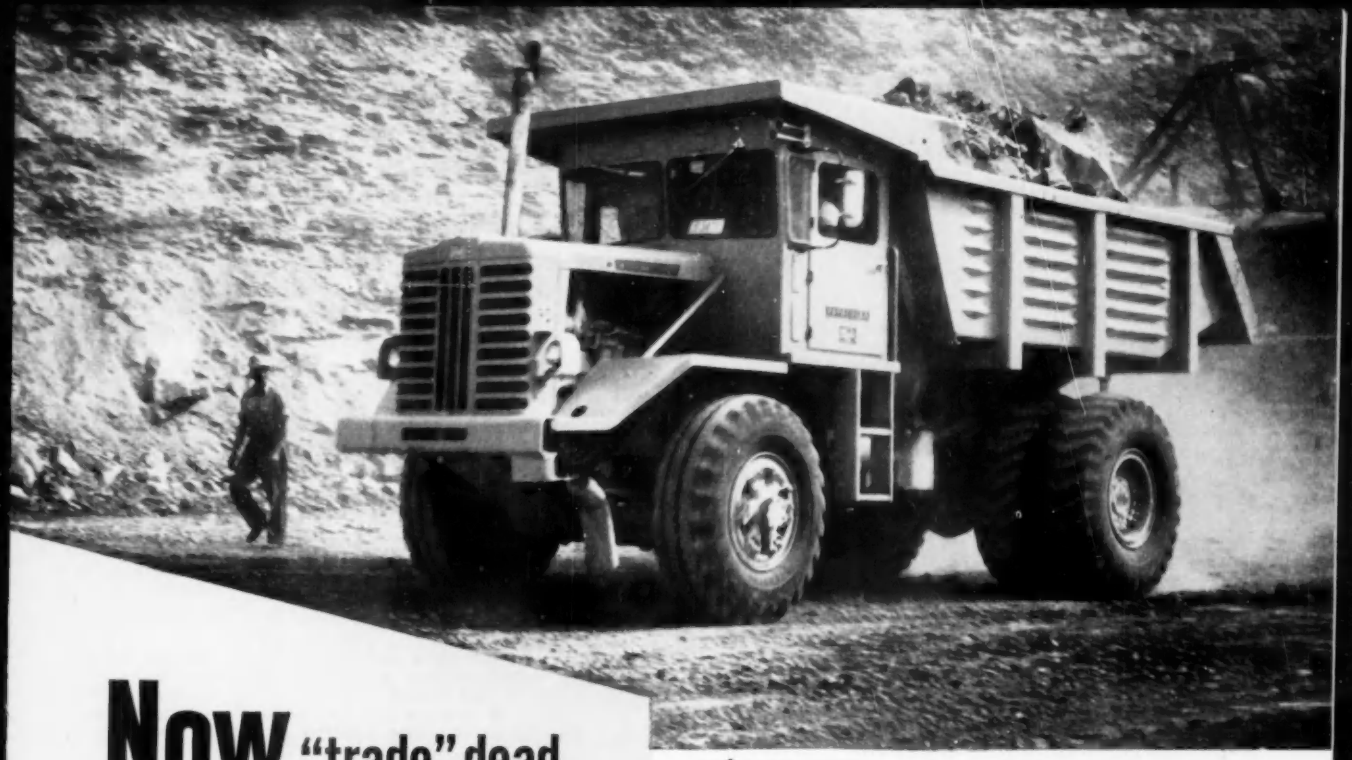
A 25-ton P & H truck crane places the ring beams and lowers other construction materials into the silos.

Besides the sponsoring firm of Morrison-Knudsen Co., Boise, Idaho, members of the construction team are: Paul Hardeman, Inc., Los Angeles, Calif.; Johnson, Drake & Piper, Inc., Minneapolis, Minn.; F. E. Young Construction Co., San Diego, Calif.; and Olson Construction Co., Denver.

Project manager for all six complexes is L. Neal Spencer. General superintendent is Mike Krumpotic; project engineer is Jerry Gibson. Area superintendents for the six complexes are: Gunner Nygard, Pete Beall, Roger Bryer, Bruce Beall, Ray Helmick and P. A. Corkins.

Lt. Col. P. D. Carlson is area engineer for the Corps of Engineers, Omaha (Neb.) district. Lt. Col. L. D. Parsons, Jr., represents the Air Force Ballistic Missile Division on the project.

In this missile complex the inside forms for the powerhouse dome are in place, and workmen are installing reinforcing steel.



Now "trade" dead weight for payload..and haul 40% faster!

Heap-load the big-target Payhauler body in minimum time. Strong rock-ribbed corrugations absorb shock—resist wear and distortion. Choose the "95" with power-shift Torque-Converter, or 9-speed air-shift transmission.

New strength-multiplying corrugated body design results in payload-gaining weight reduction of both International Payhauler models. New "95" capacity is increased to 27 tons—and the new "65" becomes the only 19-tonner on the market!

Look at those exclusive, rock-ribbed body corrugations! International applies this strength-multiplying principle to reduce Payhauler® body weight by an amazing 30%! You "trade" 2½ tons of power-wasting dead weight for 3 bonus tons of payload capacity in the new 95 Payhauler!

New high-torque, high-output diesel power highballs 27-ton payloads up to 40% faster than the former "95" could haul only 24 tons! The new 375 hp DT-817 International diesel engine gives the new 95 Payhauler the wallop of 40 extra turbocharged "horses."

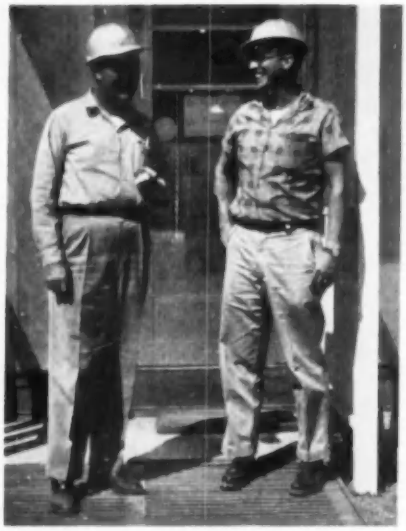
Prove to yourself that top load-carrying capacity plus top power-to-weight ratio give 95 Payhaulers tremendous profit-earning advantages. Add up other big Payhauler exclusives: fast reverse, up to 7.1 mph. for spotting speed; big-target bodies for loading zip; 11-second inverted-hoist dumping; load speeding safety of torqmatic braking and positive power-steering! Let your International Construction Equipment Distributor demonstrate!

International® Construction Equipment

International Harvester Co., 180 N. Michigan Ave., Chicago 1

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors . . . Self-Propelled Scrapers and Bottom-Dump Wagons . . . Crawler and Rubber-Tired Loaders . . . Off-Highway Haulers . . . Diesel and Carbureted Engines . . . Motor Trucks . . . Farm Tractors and Equipment.

Slicing into the left abutment, a Marion 111-M loads loose rock into a Euc for dumping upstream. Dozers clean up the bank to bedrock in preparation for placement of embankment.



Boss of the Terminus Dam work is Project Manager Bill Sell (left). With him is Dean McAuliffe, office manager.

(Below) Man-sized water wagons were brought in by the contractor who added an 8,000-gallon Southwest water wagon to a Cat DW21 tractor, complete with front and rear sprays, fed with pressurized water pumped by an engine mounted on rear of the wagon.

Tandem Cat D9's push heaping loads of dead gravel into DW-20-No. 456 tractor-scrapers for access road construction from the floor of the valley up to the spillway area. About half of the embankment material will come from this upstream borrow pit.

Terminus Dam's Model Excavation Show

Core of the dam is cut by a 3-yd. dragline loading into Euc rear-dumps. A D8 tractor cleans up the trench floor, dozing material within reach of the dragline. A special tool-bar scarifier has been fabricated for the D8 for loosening hard material.

TIME spent properly laying out a job early in the contract can lead to big dividends when full scale operations get underway. One contractor, Winston Brothers-Green Construction Co., has taken this philosophy to heart on its 8,500,000-yd. Terminus Dam project in central California.

When completed, the $9½ million rolled-earthfill structure will catch the snow-fed waters of the Kaweah River, stemming the periodic and costly floods sweeping across the farms and orchards in the Visalia area, 17 miles below. Farmers in the rich San Joaquin Valley expect to gain an additional month of irrigation in late summer, possibly lasting into September.

Terminus Dam includes two structures—the main dam blocking the river valley, and the auxiliary dam plugging a saddle in the south bank. Rising 250 feet above stream bed, the main dam will extend 2,375 feet across the valley, with a 25-ft. crest and 2 on 1 slopes widening to a 1,075-ft. base. The 420,000-yd. auxiliary dam will be 100 feet high, 1,000 feet long with a 25-ft. crest, and 2 on 1 slopes widening to a 500-ft. base. Fed by a 560-square mile drainage area, the dam will contain 150,000 acre-feet of water covering 1,945 acres. The project is designed solely for flood control, permitting the use of an uncontrolled weir spillway.

Winston-Green started construction in February 1959. Last summer was spent getting in the core, outlining the main dam and organizing all the phases of material handling. Ma-

Terminus Dam will plug this valley, stretching from the spillway crossing in the foreground to the carved hillside in the background. At the time of this picture, the core trench was being pressure grouted, and abutments were being stripped.

Another example of job preplanning is this arrangement for prescreening drain material. As this dragline dumps pit run material from its 2½-yd. Hendrix bucket into a Cat DW20-Athey PW20 wagon, a specially-fabricated grizzly on the wagon sheds all rock over 8 inches, reducing the load on the screening plant and eliminating much unnecessary hauling.

Work bosses are Herb O'Brien (left) assistant superintendent, and E. W. Danielson, structure superintendent. Herb's constant companion is Dutch, a friendly boxer.

jor earthmoving got underway last fall, with closure scheduled for the summer of 1961. Earth is to be up to elevation 715 (within 35 feet of the top) by November 15, 1961, and all work is to be completed by April 1962. Work on the auxiliary dam is set for the spring of 1961, after relocation of Highway 198 around the reservoir is completed under another contract.

Meanwhile, a diversion tunnel has been pushed 1,200 feet under the left abutment by Mountain States Construction Co., Denver, Colo., on a subcontract from Winston-Green.

Lining Poured

The 13-ft. 9-in. diameter tunnel was holed through last October, and its concrete lining was scheduled for completion in December. It will not be needed until the summer of 1961, when the final closure is made.

Winston-Green moved in a big fleet of over 45 major pieces of equipment. Work was organized along three lines—scrapers on core and transition material, wagons on pervious material, and trucks on rock. Early stages of work were directed at opening up borrow pits, setting up the screening plant and establishing haul and access roads.

Core excavation went fast, with a 4-yd. Marion 111-M dragline and a 3-yd. Bucyrus-Erie 71-B loading into a fleet of 12 Athey PW20 wagons pulled by Cat DW20's, and six Euc 27-T rear dumps. Utilization depended mainly on the amount of room at each end—rear dumps in tight quarters, wagons for high production. When the gravel had been excavated to bed rock, baring a trench 68 to 70 feet wide by 600 feet long, the core was pressure grouted.

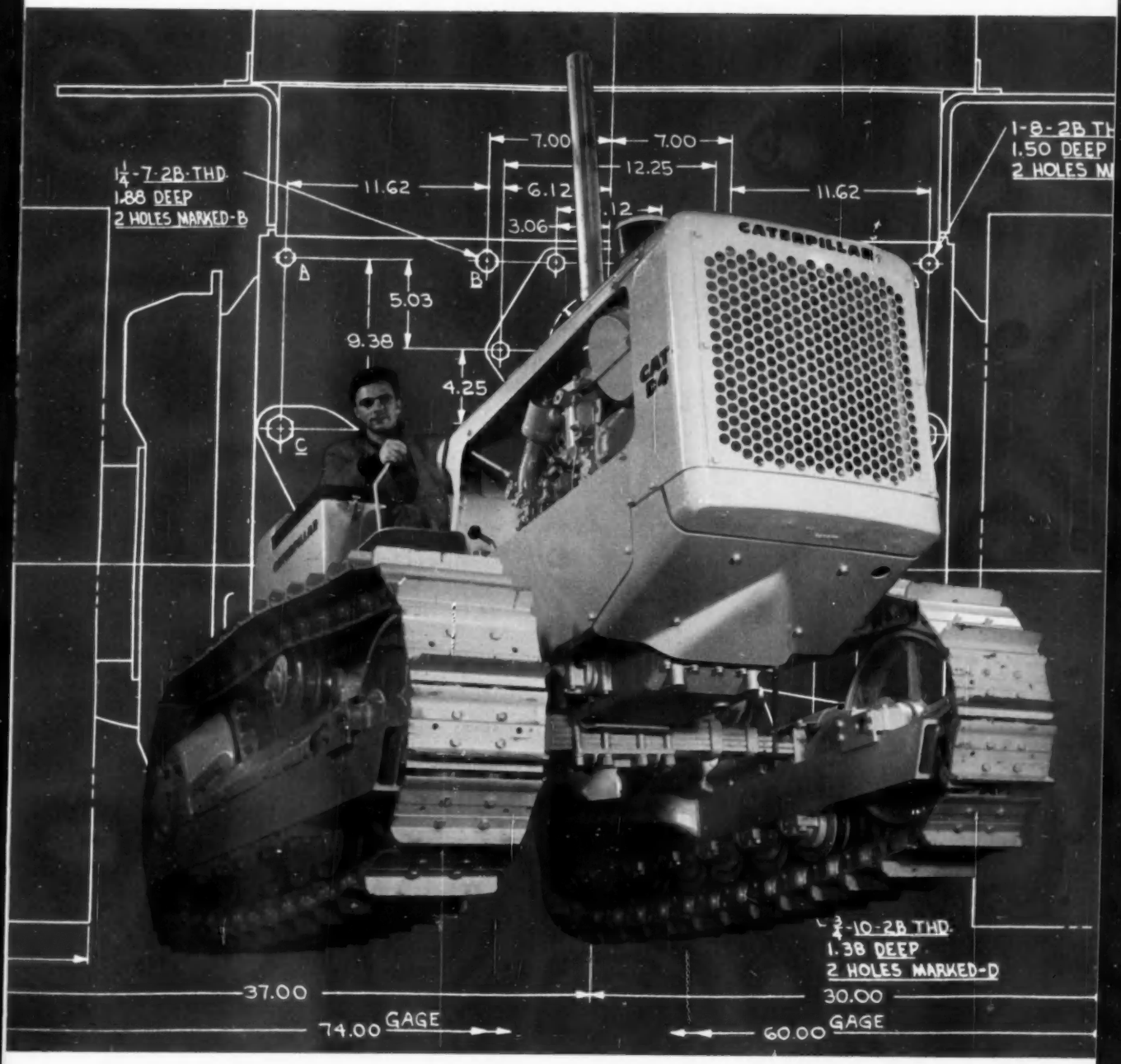
Clay for the impervious fill and transition zone is being pulled from a large borrow pit downstream. Six Cat DW20-No. 456 tractor-scrapers, push-loaded by D9 tractors, make the 3,500-ft. haul to the embankment. Dead gravel, stripped from the pits by tandem D9-pushed DW20's, was used to build haul and access roads. A major undertaking was a truck road up the left bank to the spillway area.

For embankment placement, Winston-Green planned to move one

Continued on page 43

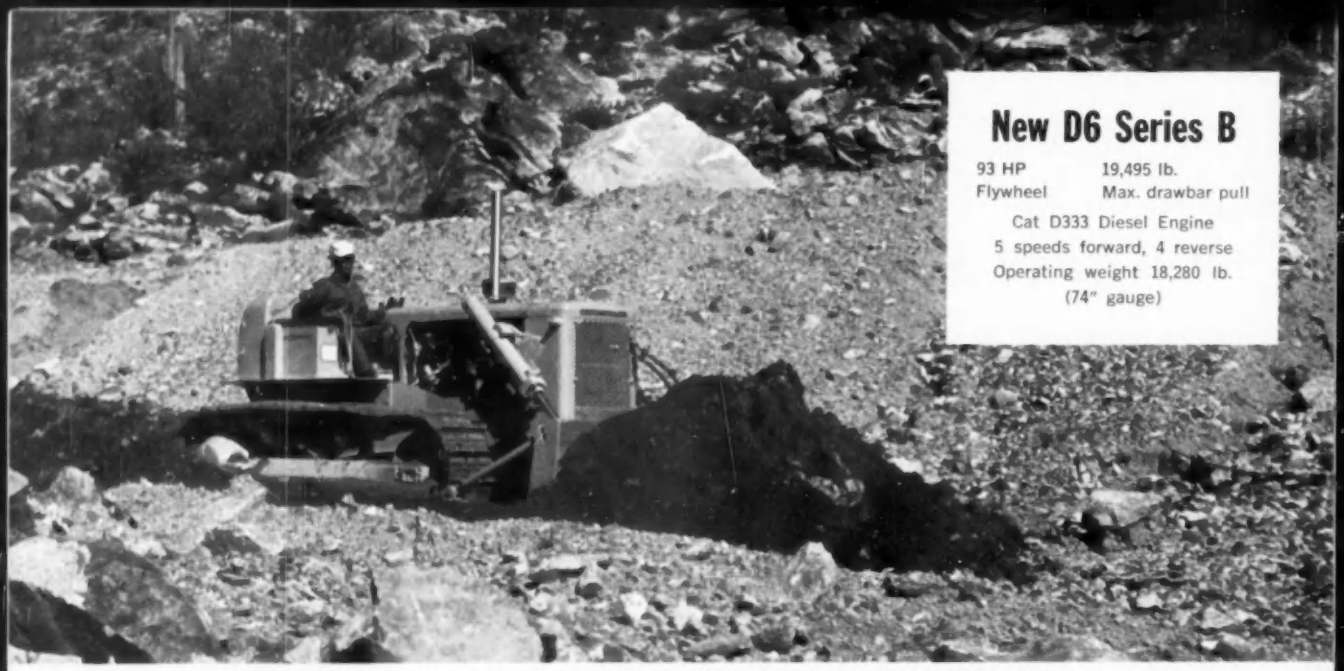
CATERPILLAR ANNOUNCES

2 NEW TRACTORS



D4 Series C · D6 Series B

completely redesigned to boost production and lower costs



New D6 Series B

93 HP Flywheel — 19,495 lb. Max. drawbar pull

Cat D333 Diesel Engine
5 speeds forward, 4 reverse
Operating weight 18,280 lb.
(74" gauge)

ATTACHMENTS for the D6 and D4, individually designed to match the capacities of each machine, include Bulldozers, Tool Bar, Rock Rakes, Winches, K/G Blade, Back Rippers and many others.

New D4 Series C

65 HP Flywheel — 13,000 lb. Max. drawbar pull

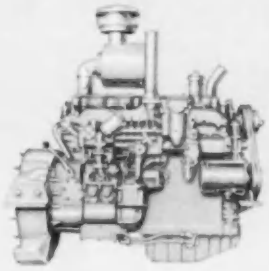
Cat D330 Diesel Engine
5 speeds forward, 4 reverse
Operating weight 11,710 lb.
(60" gauge)

STARTING EQUIPMENT for both tractors includes an improved starting engine with recoil starter for fast starts. 12-volt in-seat starting for starting engine available. 24-volt direct electric starting for diesel optional.

NEW D6 Series B and D4 Series C Tractors...

They look different—they are different. Look them over and see for yourself the advances Caterpillar has built into the new work-styled D6 Series B and new D4 Series C Tractors. Each, in its own class, answers your need for new high production, new operating

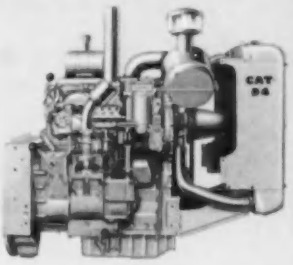
New compact Caterpillar Diesel Engines deliver 25% more lugging ability



D6 powered by 93 HP 6-cylinder Engine

Maximum drawbar pull, 19,495 lb. Provides power with dependability built in for a long life of economical, efficient operation.

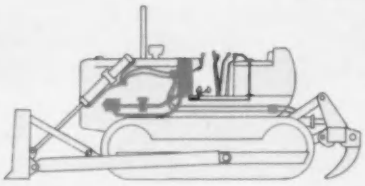
Here's power for even bigger jobs for the D6 and the D4—two completely new Cat Diesel Engines. Each is specifically designed for the tractor it serves. Yet each has certain basic characteristics in common. For example: 25% more lugging ability . . . new compactness, with new ruggedness . . . famous Cat fuel injection pumps in new, easily serviceable housings . . . the reliable Cat precombustion chamber design that delivers maximum horsepower on heavy, economy-type fuels . . . a new direct-acting governor that makes quick fuel adjustments, picks up loads fast . . . a new improved gasoline starting engine with recoil starter for fast starts in any weather—many others!



D4 powered by 65 HP 4-cylinder Engine

Maximum drawbar pull, 13,000 lb. New design results in a smooth, vibration-free performance through all speed ranges.

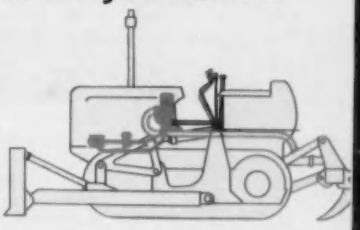
New integral hydraulic systems put more power where you need it



D6 Integral Hydraulic System

No. 165 Hydraulic Control for Bulldozer, 54 GPM—1500 PSI
No. 143 Hydraulic Control for No. 6 Tool Bar, 29 GPM—1700 PSI

More work power at the tools—you'll find that's one of the big advantages of these new Cat hydraulic systems. Under-the-hood mounting of tank, pump and valves permits convenient routing of hydraulic lines to bulldozer or implement cylinders, frees front and rear end for optional equipment. Center-pivoted cylinder mounting on the D6 gives increased blade lift/drop range for increased production. Hydraulic control system provides hand control for bulldozer and/or ripper, foot control for tilt cylinder. A choice of three hydraulic circuits gives you complete flexibility to meet all needs. You also have a wide choice of tools to make both tractors even bigger earners.



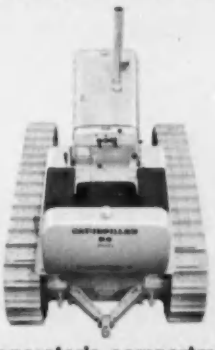
D4 Integral Hydraulic System

No. 143 Hydraulic Control with:
29 GPM Pump—1700 PSI for Bulldozers
17 GPM Pump—1700 PSI for Tool Bars

New operator convenience and comfort in co-ordinated compartments

D6 operator's compartment

Look what's happened to the operator's compartments in the D6 and D4! Both are all new and completely restyled. The controls are co-ordinated to make one motion flow into the next one. They reduce hand movements and speed every operation. The forward-reverse lever is located next to the operator's right hand to quicken 'dozer cycle times. The transmission speed selector is only inches away. The governor control is high and clear, extending from the new streamlined, quick-vision dash. Boosters for steering clutches provide muscle-saving operation. And the comfortable, high-placed seat allows full view of tools for faster, more accurate work.



D4 operator's compartment

better than ever with new work-producing features!

economy and new earning capacity. Each is completely redesigned to lick the tough challenge of today's fast-paced jobs. Some of their new features are described here. Notice how they complement performance-tested features to make these modern, heavy-duty rigs better than ever. See your Caterpillar Dealer for complete facts about them and their matching equipment. He'll gladly demonstrate on your job.

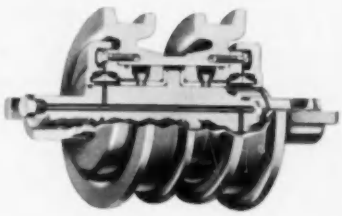
More features that put the new D6 and new D4 out front in production and economy!

Dry-type air cleaner

Most efficient air cleaner ever developed. Removes 99.8% of all dirt from intake air during every service hour, even in the dustiest conditions. Can be serviced in five minutes. Cuts maintenance time (by as much as 75%) and eliminates all oil costs. This modern-design oil cleaner is new in both the D6 and D4.

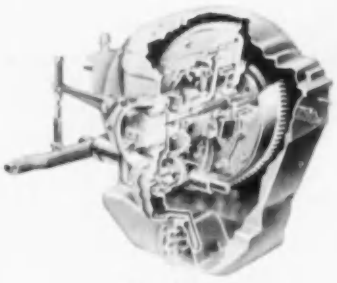
Hydraulic track adjusters

Another on-the-job timesaver developed by Caterpillar. An ordinary grease gun is all that's needed to assure proper track tension. Just open the inspection door and apply a few strokes. The hydraulic cylinder does the rest automatically. Job-tested, hydraulic track adjusters are optional on both the D6 and D4.



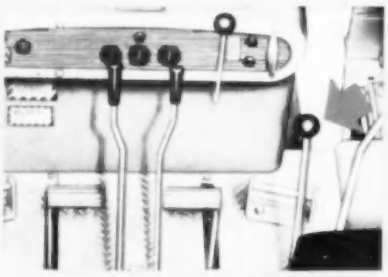
Lifetime lubricated track rollers

That's right – lifetime! Proved by more than five years' testing. Exclusive floating ring seals protect rollers and idlers – keep oil in, dirt out. No lubrication or greasing at all required until rebuilding. Help you roll up profits instead of repair bills. This long-life feature is new in both the D6 and D4.



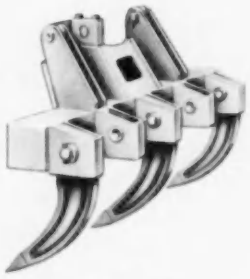
Oil clutch

The most advanced clutch design in the industry – a Caterpillar exclusive. Provides up to 2,000 hours' service without adjustment, the equivalent of about 13 months' "adjustment-free" operation. Virtually eliminates down time for clutch repair. Retained on the D6. Optional on the D4.



Forward-reverse lever

Retained on the D6, this lever is new on the D4 – **an exclusive feature in its class** – and puts the D4 way ahead of the rest in fast 'dozing cycles. Next to the operator's right hand, and only inches away from the transmission speed selector, it lets you change direction quickly and easily.



Matched equipment

You can multiply the profitable uses of both the D6 and D4 with rugged matched equipment. Built to specifications for each tractor, there are Straight and Angling Bulldozers, Rippers, Tool Bars, Rock Rakes, Winches, Bulldozer-mounted Back Rippers, K/G Blades and other tools. Hydraulic or Cable Controls.

ARE YOU GETTING ALL THE PROFIT?

Now is the time to take careful stock of your equipment—to make sure it's earning you all the profit to which you are entitled. All too often, profits slip away because a tractor that appears to be paying its way is actually not delivering the way it should.

A veteran tractor, for example, may be holding down a key job. Repair costs are low. On the face of it, the tractor seems to return a decent profit. But in reality—that tractor could be losing as much as it earns.

Machines have improved a lot in recent years—and Caterpillar has set the pace all along the line. Consider the new D6 Series B and new D4 Series C Tractors. In terms of work, both of these rugged units can do a lot more—not only mechanically—but from the standpoint of greatly increased operator efficiency. A comparison of your existing equipment with these work-styled machines might easily prove a new tractor would increase your output and profits far more than you imagine.

Ask your Caterpillar Dealer to demonstrate the giant strides represented by these two new tractors. Investigate the complete line of attachments that double and triple their usefulness to you. See for yourself how the new D6 and new D4 can help you earn *all* the profit you should on your jobs!

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

CATERPILLAR

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DIESEL ENGINES • TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

BORN OF RESEARCH
PROVED IN THE FIELD

Terminus Dam . . .

Continued from page 38

shovel and one dragline and the PW20 wagons up to this pit to haul the pervious fill. A new channel has been cut to carry the Kaweah River around the pit, permitting work to continue through the winter and spring. A second pit 3,000 feet downstream will be used after the closure is made, backing up the river.

About a million yards of rock will be pulled out of the left bank for the spillway cut. An Ingersoll-Rand Drillmaster, using 6½-in. bits with carbide tips, is drilling the rock in 40-ft. lifts. Holes are loaded with Atlas and DuPont stick powder and ammonium nitrate. One shovel and six end-dump trucks will handle this excavation. Most of the rock will be used as riprap in the dam facing.

A simple but highly effective screening operation has been set up downstream to provide the 120,000 yards of drainage rock. Sufficient suitable material is available in one pit. A 54-B dragline with a 2½-yd. Hendrix bucket loads the material into two modified PW20 Athey wagons. Winston-Green has mounted grizzlies on a 45° angle over the wagons. These gratings shed rock over 8-in. size, greatly reducing the task of the screening plant.

Short Haul

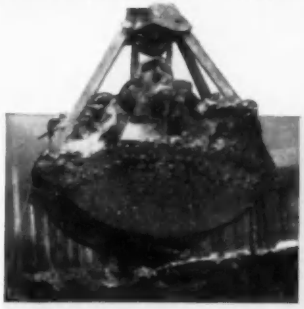
The DW20's haul the material 1,000 feet to the plant for processing. While the plant is operating, material is belly-dumped through a grizzly onto a feeder belt. Other times the material is stockpiled next to the grizzly for feeding as needed by a D8. The triple-deck Seco screen plant rejects all rock over 3 inches and fines less than No. 8. A Michigan 75A loads the screened rock into two PW20 wagons for the 2,500-ft. haul to the dam.

Key personnel include Bill Sell, project manager; Fred Peterson, superintendent; Dean McAulliffe, office manager; Herb O'Brien, assistant superintendent; R. M. Latham, excavation foreman; E. W. Danielson, structure superintendent; and Glen Kitley, master mechanic.

Resident engineer for the Corps of Engineers is F. L. Long, Jr. He is assisted by Ray Hefington, chief inspector and Steve Sato, administrative assistant.

OWEN BUCKETS

THE GIANT OF THEM ALL



The following five combined features make OWEN the big giant performer . . . for any type of clamshell work . . . for any model or make of crane.

1. Block and Tackle Type Reeving
2. One-Piece Head Construction
3. Riveted Bowl Assembly
4. Single Main Shaft
5. Recessed Lips

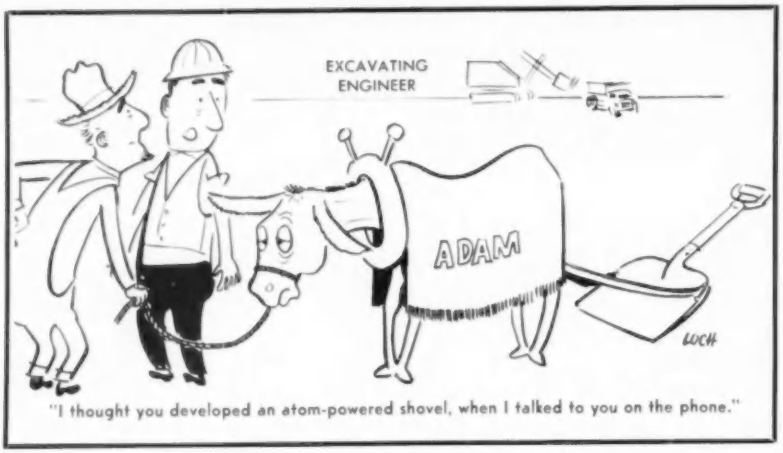
Added to these construction features are more than fifty years experience in the manufacturing of clamshells . . . and nothing else! For any job that requires a clamshell, there is an Owen to fill the bill . . . backed by proven construction design and over one-half century of experience.

Put the Giant on your crane — OWEN — and know the work will be done faster, better and more economically.

Write today for any specific or additional information

The OWEN BUCKET Co.
BREAKWATER AVENUE, CLEVELAND 2, OHIO
BRANCHES: New York • Philadelphia • Chicago
Berkeley, Calif. • Fort Lauderdale, Fla.

News from the Field



"I thought you developed an atom-powered shovel, when I talked to you on the phone."

Engineers Stage Mock Flood Alert

A make-believe Mississippi River flood alert was staged last month from St. Louis, Mo., to the Gulf of Mexico to test the preparedness of Corps of Engineers flood fighters. Chief planner of the exercise was Maj. Gen. W. A. Carter, president of the Mississippi River Commission and division engineer of the Corps' lower Mississippi valley division.

The "paperwork" flood fight was complete in every detail, with hypothetical river stages, predictions, and special situations used to bring the crest down the Mississippi. The purpose of the practice exercise was to rehearse activities which would be performed in an actual flood emergency. A compressed time scale was used during the two-week long exercise, with two hours of each day representing a day during the imaginary flood.

The practice fight was waged in the same manner as a real flood would be handled. Gen. Carter said "We have confidence in our flood control plan, but complacency about the situation could be disastrous. We must always be on the alert and ready to combat a major flood, even though we are not expecting one," he said.

Three U. S. Army headquarters, two U. S. Coast Guard districts, three regional offices of the Office of Civil & Defense Mobilization, and the local levee boards in the area cooperated with Corps of Engineers officials.

Marsh Buggy Uses Big Tires

A new type marsh buggy has been designed and built by Crain Bros., Grand Chenier, La., for use in oil explorations and as a personnel carrier in swampy areas. It is designated model 400.

The unusual vehicle rides, or floats, on huge Terra-Tires manufactured by Goodyear Tire & Rubber Co., Akron, Ohio. Inflated to proper pressure, the tires can float the 4,000-lb. vehicle carrying a 4,000-lb. payload through deep water. The tires measure more than five feet high and 42 inches wide.

Beavers Honor Six

Six prominent figures in heavy construction were honored at the fifth annual Beavers awards dinner held January 21 at the Statler-Hilton hotel, Los Angeles, Calif. More than 1,100 members of the Beavers, whose membership is a "blue book" of the construction and engineering world, attended the formal affair. Golden Beaver trophies denoting outstanding achievement were presented in the following divisions:

Management: Algot F. Johnson, Al Johnson Construction Co., Minneapolis, Minn.; Walter Scott, Peter Kiewit Sons Co., Omaha, Neb.

Supervision: Victor G. Hindmarsh, Bechtel Corp., San Francisco, Calif.

Engineering: W. J. Leen, U. S. Army Corps of Engineers, Los Angeles district.

Supply: Tim J. Riley, Ingersoll Rand Co., San Francisco, Calif.

Special: Lt. Gen. Raymond A. Wheeler, U. S. Army (ret.).

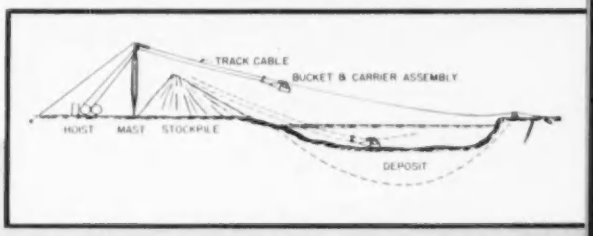
Presiding at the awards dinner was Beaver president R. W. Rasey, who is also president of Winston Brothers Construction Co. of Minneapolis.

Other Beaver officers are: Paul Grafe, senior vice president; Edgar F. Kaiser, vice president; J. P. Shirley, Jr., secretary-treasurer; J. W. Watson, assistant secretary-treasurer; and James L. Lovell, ambassador of goodwill.

A model 400 marsh buggy rolls out of swamp on Terra-Tires five feet high.

GET ALL THE MATERIAL OUT OF YOUR PIT

A Sauerman Slackline Will Recover It For 6 Cents A Ton



Plants Like This Are Turning Hard-To-Reach And Deep Materials Into Increased Profits

One way to beat increasing land values and depleting resources is to get all the material out of your present deposit. You can do this with a Sauerman Slackline Cableway. The machine starts at ground level and continues to work at depths and distances that cannot be reached with other excavating equipment. A Slackline will dig 100 feet below water and haul loads over 1000-ft. spans.

A Sauerman Slackline beats rising operating and labor costs, too. It provides what is probably the most economical of all excavating and hauling methods. Operating costs as low as 6 cents per ton for labor, power and maintenance are frequently reported.

Another advantage of the Sauerman Slackline is that it can be operated continuously in all types of weather. This permits building a ready stockpile to meet seasonal or unforseen demands.

If you are starting a new plant or updating an existing one, do it with the machine that gets the most out of your deposit at lowest possible cost. Sauerman Slacklines are built in sizes up to 3½ yds. to match your tonnage requirements. Write or call about your deposit. We'll recommend the proper machine.

Bucket inhauling load from 100-ft. depth.

SAUERMAN BROS., INC.

622 So. 28th Ave., Bellwood, Illinois
Linden 4-4892 • Cable CABEX—Bellwood, Illinois

Crescent DragScrapers • Slackline and Tautline Cableways • Durolite Blocks

YARDS ON

MODEL CW-220
20.0 cu. yds. STRUCK
27.0 cu. yds. HEAPED
INTERCHANGEABLE WITH MODEL CWD-221 REAR DUMP UNIT

MODEL CW-215
15.0 cu. yds. STRUCK
21.0 cu. yds. HEAPED
INTERCHANGEABLE WITH MODEL CWD-214 REAR DUMP UNIT

MODEL CW-27
7.0 cu. yds. STRUCK
10.0 cu. yds. HEAPED

MODEL CW-226
26.0 cu. yds. STRUCK
36.0 cu. yds. HEAPED

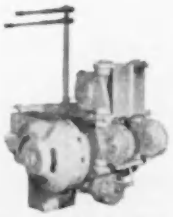
MODEL CW-320
20.0 cu. yds. STRUCK
27.0 cu. yds. HEAPED
INTERCHANGEABLE WITH MODEL CWD-221 REAR DUMP UNIT

MODEL CWD-221
21.0 cu. yds. STRUCK
31.0 cu. yds. HEAPED
35-TON LOAD CAPACITY
INTERCHANGEABLE WITH MODELS:-CW-220

INTERCHANGEABLE WITH MODEL CW-320 SCRAPER UNIT

MODEL CWD-321
21.0 cu. yds. STRUCK
31.0 cu. yds. HEAPED
35-TON LOAD CAPACITY

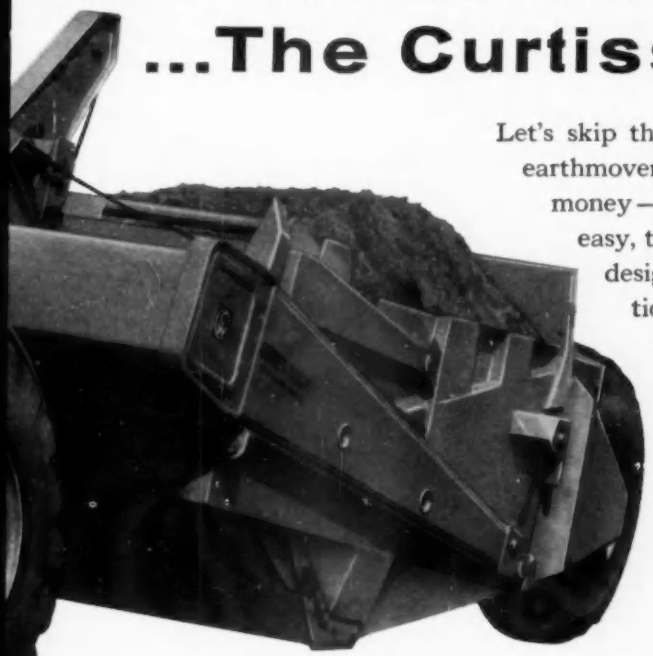
MODEL CWT-20
20.0 cu. yds. STRUCK
27.0 cu. yds. HEAPED



CABLE CONTROLS
for standard tractors in every horsepower range

AHEAD

ANY EARTHMOVING JOB ...The Curtiss-Wright Line



Let's skip the details and get down to basic facts about earthmovers. If you move more dirt, you make more money — it's as simple as that . . . and just about as easy, too, with the modern Curtiss-Wright line. C-W design features for high performance, easy operation and low maintenance put you yards ahead in production — dollars ahead in profit on any earthmoving job. Call your Curtiss-Wright distributor for complete information and specs on the machine performance matched to your job requirements.

Your local Curtiss-Wright distributor is part of a nationwide sales, parts and service network devoted to making Curtiss-Wright users the most satisfied in the industry. You can depend on him for the most efficient, most cooperative service that it is possible to provide.

AD NO. 52-40

SOUTH BEND DIVISION, CURTISS-WRIGHT CORPORATION • SOUTH BEND, INDIANA

SOUTH BEND DIVISION
CURTISS-WRIGHT CORPORATION
SOUTH BEND, INDIANA

Equipment You Ought to Know About

Dust Collector

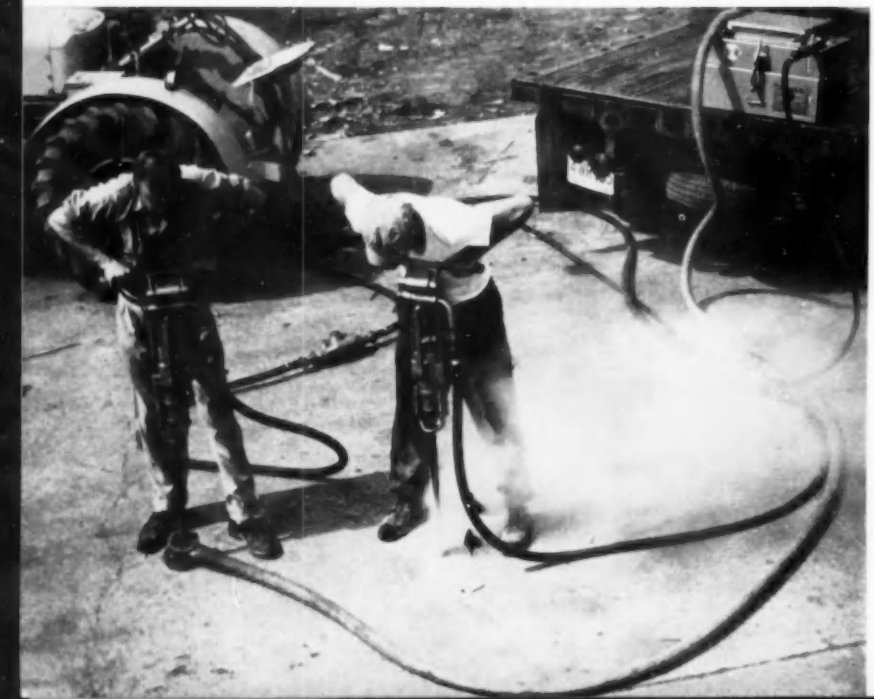
Manufacturer: LeRoi Div., Westinghouse Air Brake Co., Department EE, Milwaukee 1, Wis.

Claims: A newly developed dust collecting system for use with hand-held sinker drills is now being offered by Le Roi. It can be used with any brand of rock drills, according to the manufacturer.

Operation of the dust collecting system is simple. Dust and cuttings are trapped by a collar that fits around the drill steel and are "inhaled" through a connecting hose to a Le Roi DK280 dust collecting tank.

In addition to eliminating dust as a health hazard, the collecting system increases air tool operator comfort and efficiency. It also is a good public relations factor in residential or pedestrian areas.

The DK280 dust collecting tank can be mounted on any compressor carrying truck, portable compressor or Le Roi's combination tractor-compressor, the Tractair. Also used in coal and ore mine drilling, the DK280 has a big 23-in. wide, 16-in. long and 7-in. deep drawer that pulls out easily for disposal of dust and cuttings.



Open Chain Lube

Manufacturer: Whitmore Mfg. Co., Department EE, Cleveland 4, Ohio.

Claims: A free trial aerosol can of a time-tested lubricant for increasing the life of open chains is available from Whitmore. Packaged in a new 16-oz. push-button aerosol container, Whitmore's Open Chain Lubricant can now be applied faster and easier to conveyor, elevating and transmission chains of all types.

The lubricant combines the features of a penetrant, a lubricant and a rust-preventive to lengthen open chain life up to 300%. It was developed to work into close-tolerance, internal friction surfaces of open chains—between bushings and pins and bushings and rollers—to reduce wear and dissipate heat.

The special open chain formulation produces a smooth oily texture. It penetrates rusted and corroded areas to free rusted chain, nuts, bolts and hinges. It is recommended for all climatic conditions to stop rust and corrosion, even in salt atmospheres.

Bit Grinder

Manufacturer: Drillers Service, Inc., Department EE, 1794 Highland Ave. N.E., Hickory, N. C.

Claims: The Drilmore bit grinding machine rigidly holds the bit in infinitely adjustable positions with respect to the grinding wheel, so that precise and accurate grinding can be done, both to the gauge diameter of the bit and to its cutting surfaces.

The bit holder is calibrated in degrees in both directions from vertical

so that there is no guess work in setting up. Precious carbide and steel waste from inaccurate grinding are eliminated.

The entire bit holder is raised or lowered by means of a chromed wheel handle which, through two spur gears, drives the worm for minutely adjusting the depth of grinding cut. This adjustment is gauged by calibrations of .005 inch on the hand wheel. The bit holder is locked in position by a

Continued on page 52

EUCLIDS RUSH *"Life-Line"* TO ORE MINE

Because of its location in a very remote and practically inaccessible area of northern Quebec, a big iron ore mining development awaits completion of a new 200 mile railroad. When operations are in full swing, iron ore from Quebec Cartier's new mine will be transported by rail to Port Cartier, east of Shelter Bay on the St. Lawrence River. From there it will go by ship to steel mills in the United States, Canada and Europe.

Construction of this railroad through rugged country is a big tough job—one that requires dependable, large capacity equipment to keep the rush project on schedule. Pitts-Foley Co., contractors, are using 25 Euclid Rear-Dumps of 22-ton capacity. Powered by diesel engines of 300 h.p., these "Eucs" haul heavy rock excavation from cuts to fill areas. In spite of steep grades, rough roads and an operating schedule of 20 hours 6 days a week, these heavy duty haulers are maintaining an availability record of 90% or better.

With over 25 years of experience in building specialized earthmoving equipment, Euclid and its world wide dealer service organization offers you bonus benefits that bring a greater return on investment. See your Euclid dealer for technical assistance with any off-highway hauling problem.

EUCLID Division of General Motors, Cleveland 17, Ohio

GM GENERAL MOTORS EUCLID

EUCLID EQUIPMENT

FOR MOVING EARTH, ROCK, COAL AND ORE

ALL OVER THE U.S.A., CONTRACTORS

power-steer and power-shift

NO ATTACHMENT! NO AFTER-THOUGHT! NO "STOP-GAP"!

Exclusive, years'-proven combined Planet Power-steering and Hi-Lo power-shifting are designed-in, built-in, basic standard equipment of the new 230-hp International TD-25!

Simplified TD-25 design is the only planetary system engineered and located to give you the dual advantages of "live track" steering and on-the-go shifting!

"Live track" Planet Power-steering eliminates load-limiting "dead-track drag"—gives power to pull full loads on turns, as well as on straight-aways. On-the-go, Hi-Lo power-shifting does away with time-wasting "gear-shift lag"—lets you match power to load instantly for full-speed cycles!

No wonder the new TD-25 can outearn king-sized clutch-steered crawlers up to 50%—on push-loading; land-clearing; overburden removal; benching; "mass-production" dozing; ripping; other tough jobs!

New TD-25 seven-roller tracks are strength matched to the full effort of the new 230-hp diesel engine. The "25" is platformed on super-rugged double-box beam frames—and is smoothly carried on International's dual-protected Dura-Rollers, the track rollers that make 1,000-hr lube intervals practical!

Power-shift and power-steer the "25" with king-sized loads—around curves, upgrade, anywhere. Compare the advantages of getting this exclusive performance, and getting it from years'-proven standard equipment. Prove what's behind the "25's" rapid rise to nationwide contractor acceptance. Let your International Construction Equipment Distributor demonstrate!

Though "out-rated" 105-hp by a king-sized, clutch-steered competitor, this nimble TD-25 proves able to outwork "the big one"—side-casting and benching to build Pacific Northwest mountain logging roads!

International® Construction Equipment

International Harvester Co., 180 North Michigan Avenue

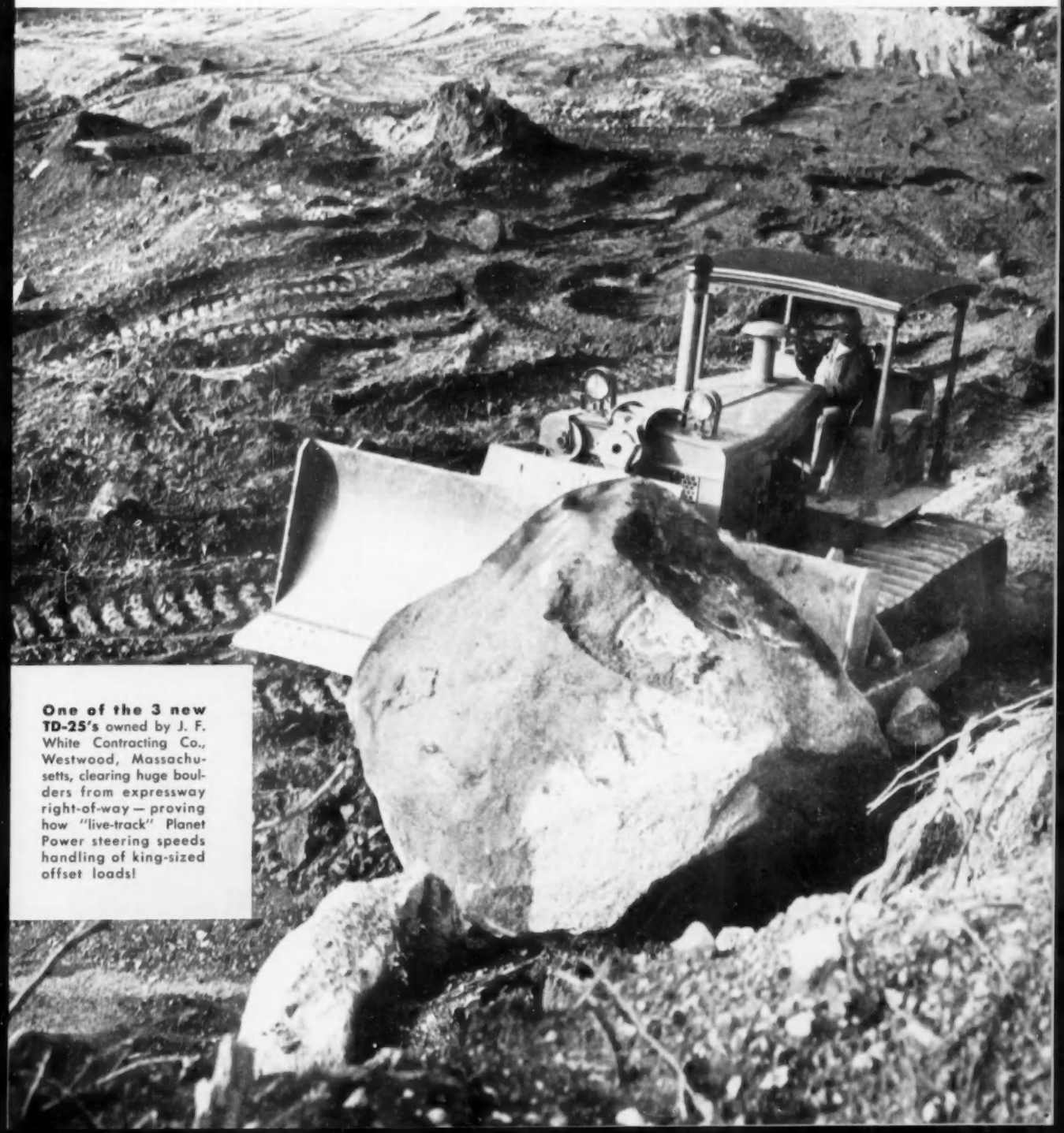
A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors... Self-Propelled Scrapers and Bottom-Dump Wagons... Crawler and Rubber-Tired Loaders... Off-Highway Haulers... Diesel and Carbureted Engines... Motor Trucks... Farm Tractors and Equipment.

Three new International TD-25's of contractor V. E. Posey's fleet team up to prepare homesites from a mountainside—near San Diego, California. Dual-valving of the "25's" direct-start DT-817 engine provides for peak turbocharging efficiency—to deliver full-rated performance, from sea level to timberline!

Cleaning the face of a Missouri strip mine behind a big dragline, this TD-25 pushes "tractor-sized" boulders aside with the greatest of ease. This "25" also builds dragline walkways and haul roads—and drastically cuts land-clearing costs for Peabody Coal Co.

For cycle-speeding push-loading, TD-25 power-shifting helps give "feather-touch" contact; maintains solid push-block contact on curves; gives gear-higher kick-outs than ordinary. The two "25's" tandem pushing the International 295 Payscraper®, and the third one ripping, belong to superhighway contractor Ed Bentley, Sylacauga, Alabama.

with TD-25 standard equipment!



One of the 3 new TD-25's owned by J. F. White Contracting Co., Westwood, Massachusetts, clearing huge boulders from expressway right-of-way — proving how "live-track" Planet Power steering speeds handling of king-sized offset loads!

New Equipment . . .

Continued from page 48

knob-handled "T" screw in a split collar which grips the guide post.

The grinder is held by an adjustable holder and can be ordered for any air or electric grinder. (The grinder motor does not come with the machine.) It is adjustable to any angle with respect to the travel of the trolley, allowing a full 180° grinder setting. These settings permit grinding wheels to be used up completely.

The grinder holder is attached to a rigid roller bearing trolley, which is traversed by hand for controlled grinding strokes. The trolley "way" is a machined member which can swing 360° around the supporting post on Timken bearings. It is firmly locked in any desired position by a knob-handled "T" screw, which pushes a steel brake shoe against a steel collar.

The machine can be disassembled into about five different components for easy transportation from one job to another.

93-Hp D6 Tractor

Manufacturer: Caterpillar Tractor Co., Department EE, Peoria, Ill.

Claims: A new series B version of the Cat D6 tractor has numerous improvements. Major new features include: 1) a completely new, compact engine that gives the tractor 25% greater lugging ability; 2) two new hydraulic control units that are now integrally mounted; 3) a tilt cylinder for special applications; 4) an all new operator's compartment; 5) an optional transmission for jobs calling for higher drawbar pounds pull.

The new engine delivers 93 flywheel horsepower at 1,600 rpm. Its modern design offers greater economy and easier servicing.

The hydraulic control pump and tank are located at the rear of the engine, under the engine hood. This arrangement clears the radiator face and permits greater air flow, which in turn increases the radiator cooling ability. The two new hydraulic controls are the No. 165 and the No. 143. The No. 165 unit is intended primarily for control of the bulldozer blade. However, its use can be expanded so that it will also control either a tilt cylinder or a tractor-mounted ripper. The No. 143 control can be used for operation of the tilt cylinder on cable-controlled bulldozer blades, or for control of the tool bar and the tool bar bulldozer. The tilt cylinder is foot-controlled for ease of operation.

Increased efficiency is the keynote of the new operator's compartment. Gear shift selector lever and forward-reverse lever are relocated to reduce hand travel distance. Gauges are grouped into a new, console-type panel, making them more easily read and protecting them from damage.

An optional transmission is available to match tractor speed and drawbar pounds pull to those most desirable for towed implements in special applications. The optional forward speeds are: first gear, 1.9 mph; sec-

Continued on page 58

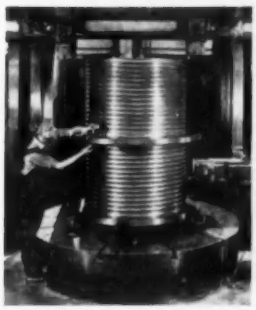
Where your profits are concerned...there is

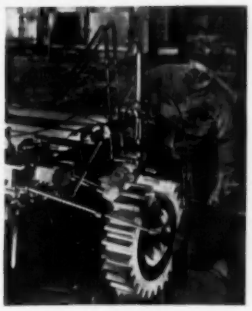
No Second Best Quality!

Bucyrus-Erie is *very* interested in the detailed production records you maintain on the machines in your pits. The reason: Bucyrus-Erie wants to be sure that the parts you buy for your equipment are *more than satisfactory*.

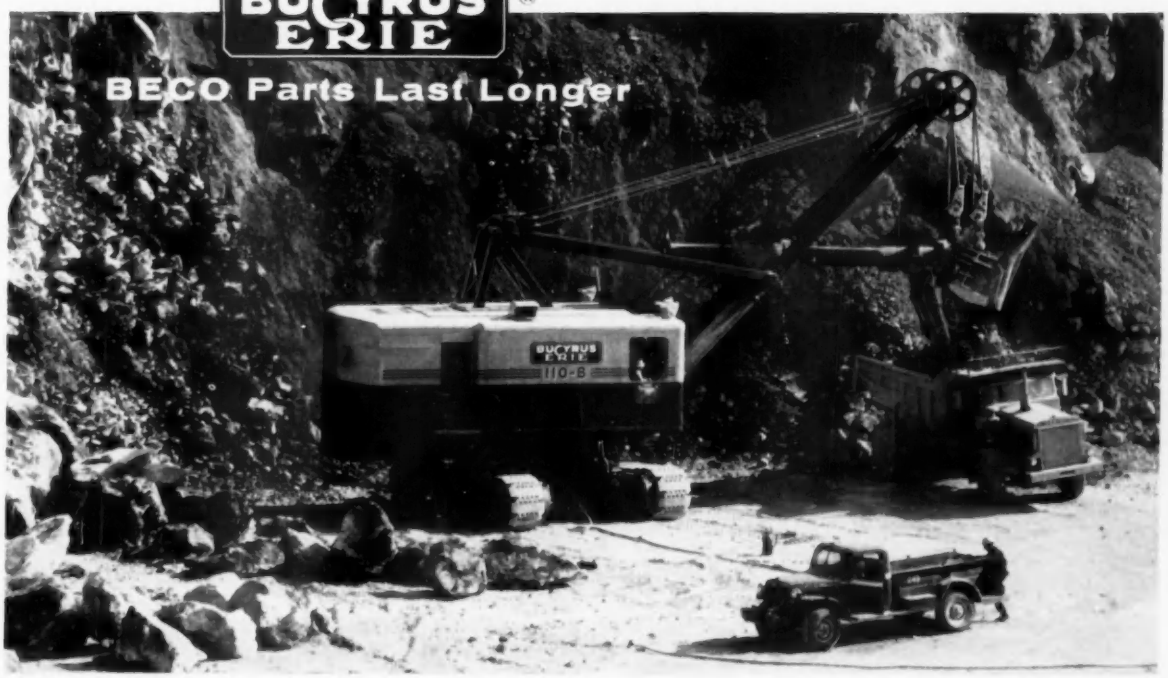
In one of the most extensive laboratories in the Industry, Bucyrus-Erie engineers and technicians constantly check and recheck, test and torture materials used in your machine parts.

That is why BECO PARTS last longer on the job, make the production records of Bucyrus-Erie machines better. We have a big stake in your operations. When you buy parts...buy original equipment BECO PARTS for new machine performance! 8M59





BUCYRUS ERIE ®



NOT in the Contract

"You mustn't be discouraged," the psychiatrist was telling the troubled young spinster. "In this world there's a man for every woman and a woman for every man. You can't improve on an arrangement like that."

Spinster: "I don't want to improve on it. I just want to get in on it."

He was telling about his date with the belle of the neighborhood. He had taken her to the amusement park and was explaining to a friend the things they had seen and done.

"I took her through the Tunnel of Love," he said. "It was just wonderful. A nice comfortable boat, and pleasant sound of lapping water. Darkness . . . everything peaceful and quiet."

"Did she enjoy it too?" his friend asked.

"I don't know. We couldn't get seats together."

Lady in subway to little boy holding large box: "What's in your box, little boy, cake?"

Little boy: "Nope."

Lady: "Cookies?"

Little boy: "Nope."

Lady seeing a wet spot on the box, running her finger along it and putting it to her tongue: "Oh, I know—pickles?"

Little boy: "Nope, puppy."

A Texan was dictating his will to his lawyer: "To my son I leave three million dollars—and he's lucky I didn't cut him off entirely."

Mrs. Murphy was busy preparing the evening meal for her children when a young woman came to the door.

"I'm collecting for the *Drunkards' Home*," she said. "Could you help us?"

"Sure," replied Mrs. Murphy. "Come around Saturday night and I'll give you Pat."

To the consternation of the guests, the vicar was very late for the marriage ceremony. Years afterward he met the bridegroom, and shaking him by the hand, remarked: "Well, John, it's just 10 years ago this month that I gave you such an awful fright."

John (gloomily): "Yes, and I've still got her."

EXCAVATING ENGINEER

"This job has given us nothing but headaches!"

Two ragged beatniks were sitting on a small pier in the Florida Everglades, dangling their feet in the stagnant water. Suddenly an alligator swam up and snapped a leg off one of them.

"Hey, man," the unfortunate fellow said to his buddy, "looks like an alligator just bit off my leg."

"Which one?" asked the cool friend.

"I dunno," said the first cat. "You see one alligator, you seen 'em all."

During the war a young pilot landed on an aircraft carrier and hurried to the skipper to say, "What a day I've had—I shot down seven Jap planes, sunk a destroyer and left a cruiser listing."

"Velly good, Yank, but you make *one* mistake!"

"And how were the bath salts?" asked the druggist.

"Well, they taste very nice," said the woman customer, "but I don't think they have the same effect as a real bath."

Wife: "I thought you were going to the lodge meeting tonight?"

Husband: "It was postponed. The wife of the Grand Exalted Invincible Supreme Potentate wouldn't let him out tonight."

"What makes you say the prisoner was drunk, officer?" asked the judge.

"He walked straight into a lamp post, was knocked down, arose and walked right into it again. After four such contacts with the lamp post, he raised his head heavenward, and exclaimed:

"Lost, lost, lost in an impenetrable forest!"

He was a rather under-sized freshman at his first college dance, but despite his smallness and bashfulness he was sure of himself in his own way. He walked over to a beautiful and over-sophisticated sorority girl and said, "Pardon me, Miss, but may I have this dance?"

She looked down at his small size and lack of fraternity pin and said, "I'm sorry, but I never dance with a child!"

The freshman bowed deeply and said, "Oh, I'm sorry, I didn't know your condition."

SPECIAL REPORT TO CATERPILLAR OWNERS:

CAT CATERPILLAR

Parts you can trust
...cost less per hour

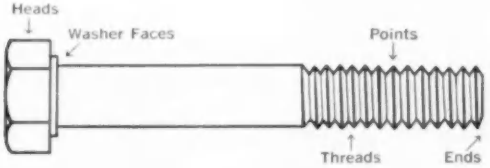
CAT ALL-PURPOSE BOLTS AND NUTS ARE STRONGER... HOLD LONGER...GRIP BETTER

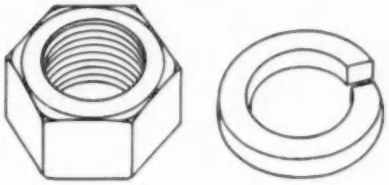
Ever twist a head off a bolt because it wasn't *strong* enough . . . or scrape your knuckle when your wrench "rounded off" the head because it wasn't *hard* enough? It's not likely to happen if you use Cat all-purpose bolts and nuts. They're highest quality in every way. For example, Cat bolts exceed Grade 6 in all requirements as rated by the Society of Automotive Engineers. Grade 5 is the average rating of bolts used in other earthmoving equipment.

WHAT GRADE OF BOLTS DO YOU USE?

Here's what's normally stocked at . . .	Hardware Stores, Automotive Outlets	Industrial Supply Houses, Other Mfr. Outlets	Special Order Only	Caterpillar Dealers
SAE	Grade 0-3	Grade 5	Grade 6	Exceeds Grade 6
Minimum Tensile Strength (Breaking point)	55,000-110,000 PSI	105,000-120,000 PSI	133,000-140,000 PSI	142,000 PSI
Hardness Rockwell Rating	RC 0-28	RC 19-32	RC 28-36	RC 30-38

If you need tougher, stronger hardware—get Cat all-purpose bolts and nuts. You can count on them to do a better job longer because they're stronger and harder than others.





HERE ARE OTHER CAT BOLT BONUSES YOU GET. *Heads* are higher and full size—easy to get wrenches on. *Flats* are hard and parallel—corners don't round off, are easy to grip. *Threads* are rounded at the roots and free from laps and burrs. *Points* are smooth and uniform. *Ends* are precisely rounded or chamfered—cross-threading doesn't occur. *Washer faces* are flat and have uniform thicknesses. *Heads and threads* are concentric to shaft—heads and nuts fit flush.

NUTS AND LOCK WASHERS are matched to every size bolt to give complete top-quality fasteners, too. Nut threads resist stripping. Corners do not round. Clean, smooth-fitting threads make installation fast and easy. Lock washers have smooth surfaces for maximum wear and strength.

When you need the best bolts and nuts to keep your machinery and other equipment together, see your Caterpillar Dealer. He has a large selection.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

SERVICE TIP: Get your free copy of Caterpillar's bolts and nuts reference booklet at your Caterpillar Dealer today. It has the sizes, threads and part numbers listed for quick, easy ordering. Before buying any hardware, check Cat prices first.

CATERPILLAR

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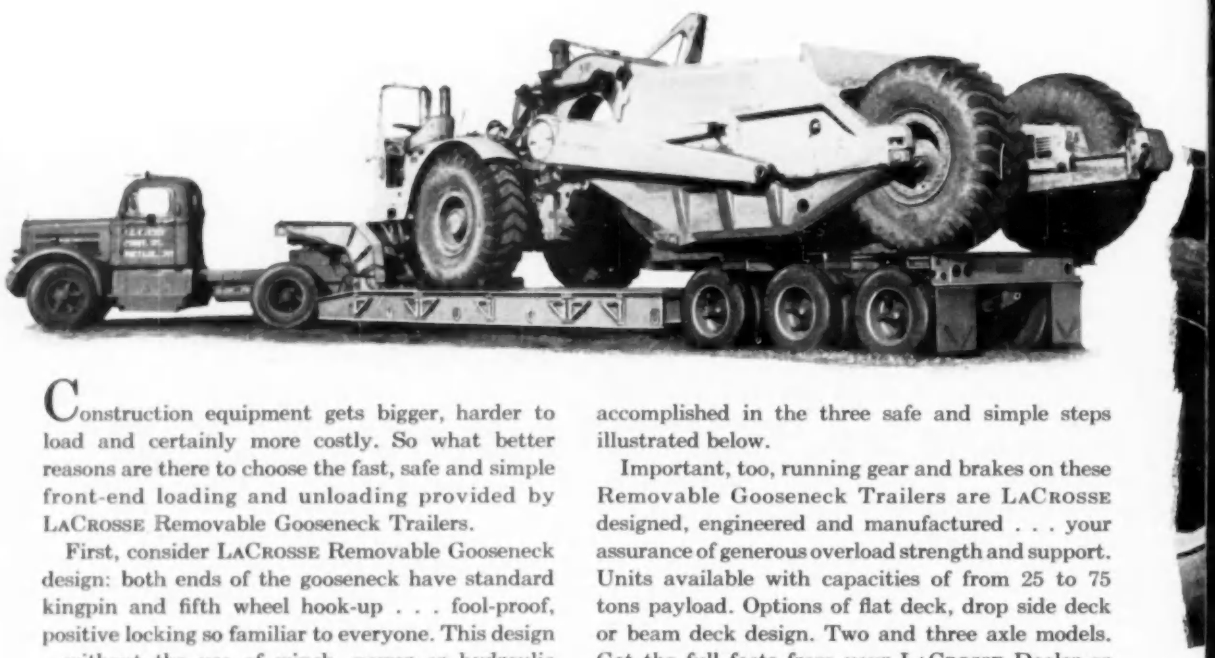
Can you imagine a more to load...unload

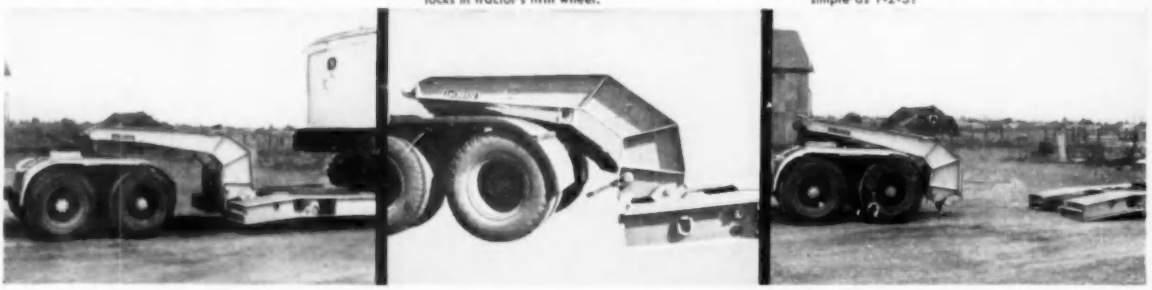


Construction equipment gets bigger, harder to load and certainly more costly. So what better reasons are there to choose the fast, safe and simple front-end loading and unloading provided by LaCrosse Removable Gooseneck Trailers.

First, consider LaCrosse Removable Gooseneck design: both ends of the gooseneck have standard kingpin and fifth wheel hook-up . . . fool-proof, positive locking so familiar to everyone. This design —without the use of winch, power or hydraulic attachments—permits loading and unloading to be accomplished in the three safe and simple steps illustrated below.

Important, too, running gear and brakes on these Removable Gooseneck Trailers are LaCrosse designed, engineered and manufactured . . . your assurance of generous overload strength and support. Units available with capacities of from 25 to 75 tons payload. Options of flat deck, drop side deck or beam deck design. Two and three axle models. Get the full facts from your LaCrosse Dealer or write for the brand new brochure No. RG-2560.

1. Release tractor kingpin connection and pull away; trailer gently lowers to the ground.
2. Swing hinged stirrups on gooseneck to up position and back up tractor till upper kingpin locks in tractor's fifth wheel.
3. Release lower kingpin from trailer fifth wheel and tractor pulls away with gooseneck. As simple as 1-2-3!

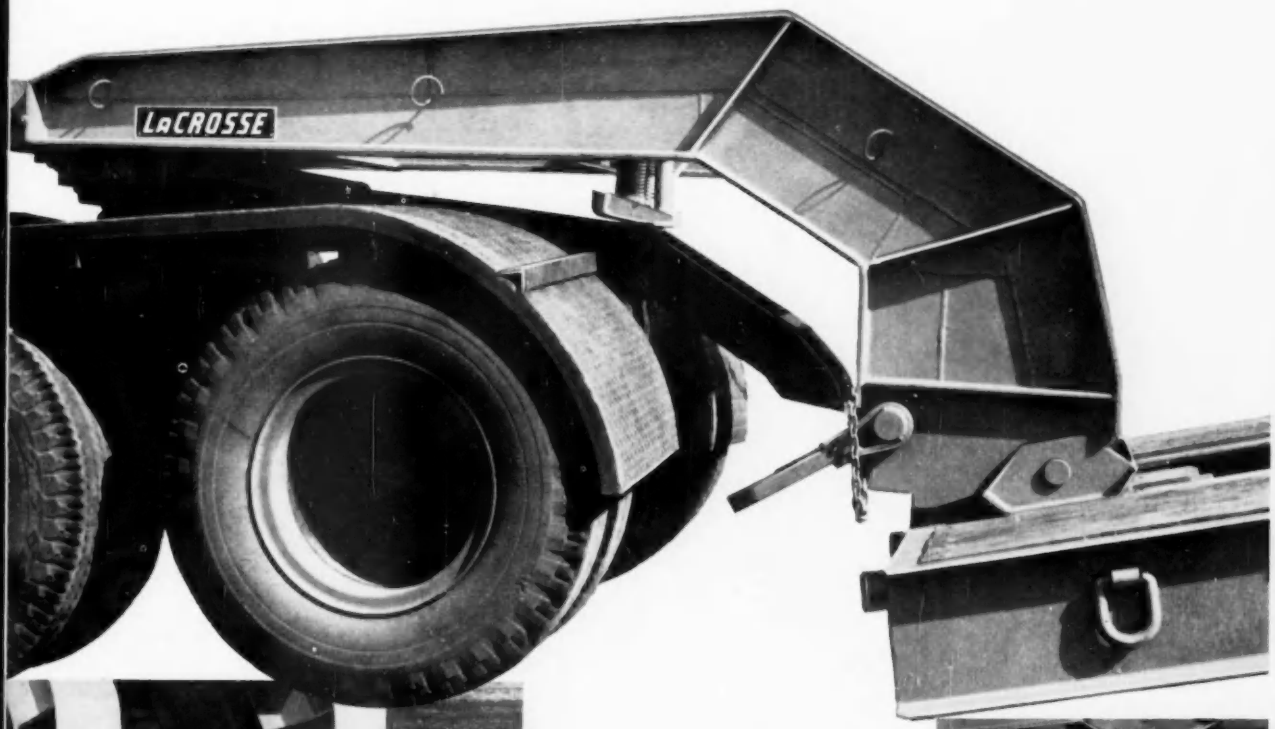


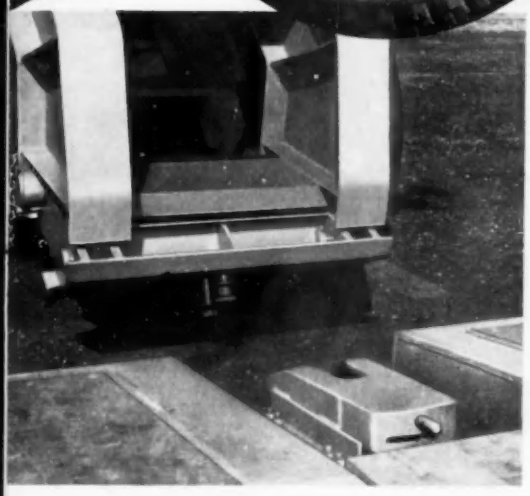
LaCROSSE

TRAILER CORPORATION

418 GOULD STREET ● LACROSSE, WISCONSIN

Safe and *Simple* way and transport?

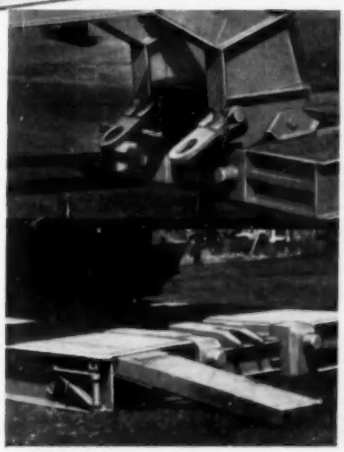




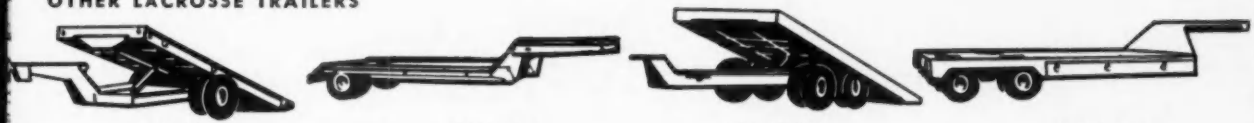
▶ Hinged stirrups on Gooseneck rotate downwards over heavy-duty carrying pins; in combination with trailer fifth wheel, provides positive locking in stationary or transport positions.

◀ Trailer fifth wheel is standard ASME code type that locks to lower Gooseneck kingpin. This simple design eliminates gadgets which complicate removal procedures as well as adding extra weight and cost.

▶ For hard-to-load or "dead" weight machines, ramp is easily placed. Note, too, side bracket; these brackets on both sides of trailer allow 24 inches additional width.



OTHER LACROSSE TRAILERS



8-10 TONS | 8-15 TONS | 13-20 TONS | 20-40 TONS

Why gamble when you buy used equipment?

When you buy a used machine you expect it to make money for you. And if you don't make money because it "wasn't what the man claimed it to be," you've made a bad deal . . . lost money. But there's no such risk when you buy from a Caterpillar Dealer. Here's why: He reconditions, classifies and guarantees his trade-ins to take the guess and gamble out of your buying. Because he does a lot of trading, he offers a wide selection of rigs—machines you can buy at realistic prices. For example:

BONDED BUY

A "BONDED BUY" in used Cat-built equipment is your best buy *anywhere*. This is an exclusive written guarantee bond, up to $10,000, assuring you parts and labor repair protection during the warranty period . . . similar to a new machine guarantee.

A "CERTIFIED BUY" covers units of any make in good condition. Machines with lots of life and profit left in them. This type of protection carries the dealer's written guarantee of satisfactory performance.

A "BUY AND TRY" deal is more than its name implies. It means a fair buy for the price asked. You are protected with the dealer's written money-back agreement. Something you won't get at most used equipment lots.

Only a Caterpillar Dealer will provide you with bonded protection, or written protection of any kind. He will also back you with prompt service and parts you can trust. You'll find a Cat Dealer listed in the Yellow Pages. Visit his used equipment lot for the best buys on the market. Compare his values with anyone else's . . . you'll soon join the family of satisfied Caterpillar customers.

Caterpillar Tractor Co., General Offices, Peoria, Illinois, U.S.A.

CATERPILLAR

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BEST BUYS IN NEW AND USED EQUIPMENT

New Equipment . . .

Continued from page 52

ond gear, 2.8 mph; third gear, 3.4 mph; fourth gear, 4.3 mph; fifth gear, 6.0 mph. Reverse speeds are: 2.4 mph, in first gear; 3.4 mph, second; 4.1 mph, third; and 5.2 mph, fourth.

No. 6S and No. 6A bulldozer and the No. 6 tool bar are available with the new D6 Series B tractor. The No. 6S blade for the 60-in. gauge tractor has been modified to a total width of eight feet, meeting transport requirements.

Big Hoe Dipper

Manufacturer: Electric Steel Foundry Co., Department EE, 2141 N.W. 25th Ave., Portland, Ore.

Claims: A 4½-yd. hoe dipper, believed to be the largest in the world, was recently built by ESCO at its Danville (Ill.) plant. The huge hoe is equipped with sidecutters to carve a trench 81 inches wide, and it will be used on a new American 900 series machine in the Los Angeles area.

ESCO has also produced a pair of 81-in. hoe dippers of 3-yd. capacity. They will be used on machines engaged in large-diameter pipeline excavation in Alabama.

Hard Surfacing Electrodes

Manufacturer: McKay Co., Department EE, Pittsburgh, Pa.

Claims: A polyethylene covered fiber container with recessed metal ends and replaceable cap is now being used for packaging McKay hard surfacing electrodes. The new package, called Poly-Rod-Pac, provides a replaceable lid which is easily removed.

Many types of electrodes have a tendancy to absorb moisture in certain humid conditions, and this can have an adverse effect on the coatings. In extensive tests conducted by Mc-

Kay engineers, it was found that the new package gives complete moisture protection to the electrodes until it is opened by the customer. Thereafter, simple replacement of the cap after use of part of the contents gives protection for days or weeks to the remaining electrodes, and sealing the cap with a strip of cellulose tape protects them for long-term storage.

The plastic covered fiber containers also give excellent protection for the electrodes during shipment.

At present McKay is packaging only Hardalloy 32 and 48 hard surfacing electrodes in the new Poly-Rod-Pac, but its use will be expanded shortly to cover all electrode products.

Sprawler Crane

Manufacturer: Koehring Div., Koehring Co., Department EE, 3026 W. Concordia Ave., Milwaukee 16, Wis.

Claims: Koehring's new model 330 "Sprawler" crane can lift more than its own weight. The crawler-mounted crane is equipped with pivoting outriggers. These outriggers are the same type used on the previously introduced model 545 Sprawler.

With the outriggers set, the 330 Sprawler can lift 60,000 pounds working with a 30-ft. boom at 12-ft. radius. With the outriggers folded against the crawlers, the new crane will lift and carry 47,980 pounds with a 30-ft. boom at 10-ft. radius.

Power Control Towing Winch

Manufacturer: Hyster Co., Department EE, 2902 N. E. Clackamas St., Portland 8, Ore.

Claims: Hyster has introduced a new power-controlled towing winch for installation on Caterpillar D8 and D9 tractors.

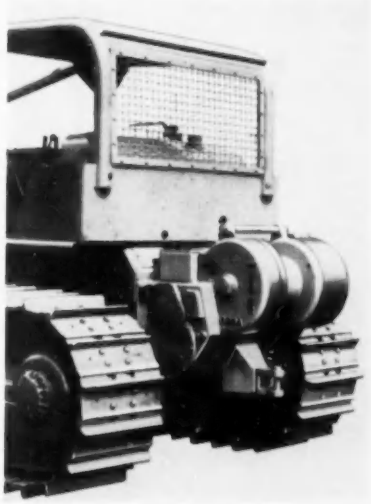
Featuring a hydraulic control system, the power-controlled Hyster D89A winch is available in regular and Lo-Speed models. Only power-controlled winches can be used with Cat D8 and D9 power-shift tractors.

In addition, the new Hyster power-controlled towing winch can be installed on Series D Caterpillar D9 tractors, and Series D through H tractors in the D8 line, with either direct or torque converter drive transmissions.

Redesigned controls are convenient to reach and operate, requiring only eight pounds of effort (compared with up to 50 pounds on former models). A single lever provides automatic brake release while engaging clutches. An inching brake lever gives precise control when lowering the load.

A gear-type hydraulic pump is driven by the tractor lay shaft. Winch transmission oil, screened through a vacuum-type filter, is used in the hydraulic control system, actuating a pair of multiple-disc, oil-cooled clutch units. No adjustment is required during the life of the clutch units. The differential brake is a self-energizing type requiring infrequent adjustment.

The power-controlled winch can be operated anytime the tractor engine is running, independent of tractor clutch, allowing winching while the tractor is moving. This increases production, allowing the load to be dropped and retrieved without stopping the tractor.



For jobs which require high line pulls and low line speeds for precise movement of extremely heavy loads,

Continued on page 62

DE-WATERING PROBLEMS LICKED

FLYGT ELECTRIC PUMPS

Contractors throughout the world find FLYGT SUBMERSIBLE ELECTRIC PUMPS tops in performance on any de-watering problem. Users such as Bechtel Corp. and Peter Kiewit Son's Co. like FLYGT foolproof features, the advantage that the pumps work in any position, and the fact that they do not clog up. FLYGT PUMPS are low in initial cost, low in operating expense, require little attention . . . save you money.

FLYGT SUBMERSIBLE ELECTRIC PUMPS range in size from 1½"-85 GPM capacity to 8"-3000 GPM capacity. Head capacities range up to 210 feet. Weights range from 80 to 1200 pounds.

CHECK THESE FLYGT FEATURES

- ✓ Electric
- ✓ Resistant to Salt Water
- ✓ Easy to Handle
- ✓ Low Maintenance Costs
- ✓ Submersible
- ✓ Will Pump High Amount of Solids
- ✓ Operates Unattended
- ✓ Runs Dry Without Damage
- ✓ Heavy Duty
- ✓ Quick and Easy to Service
- ✓ No Installation Costs
- ✓ No Priming Needed

WRITE FOR NAME OF YOUR NEAREST DEALER

Stancs MFGS. & SALES INC.

1666 Ninth St. (Corner of Olympic & Ninth)
Santa Monica, California

Why walking dragline owners TAKE THE JOBS THEY WANT!

Unfortunately, many people don't know a whole lot about walking draglines. We say unfortunately because *where walking draglines apply*, nothing — and that means no machine built in America today outside the wheel excavator — can move earth at such low cost. How low? Four cents . . . six cents . . . or eight cents a yard, and that is cheap! That's why walking dragline owners *take* the jobs they want.

Here's why dirt-moving costs are lower: The walker sits on a "tub" that gives it great flotation. It walks on a simple, giant system of beams which lift it up . . . move it ahead . . . set it down. Maintenance is low compared to *any* crawler excavator. The life span of a walker is literally unknown. The rigs don't wear out as fast, therefore have greater resale value.

The extra stability of a walker lets you use longer booms, work a greater area from each set position, reducing the number of moves. For a like investment, you can get a bigger capacity walker than crawler — you move more dirt per hour per dollar invested.

How mobile is a walker? Walkers travel at about half the speed of comparable size crawlers, but maneuver much faster because in reality they don't have any maneuvering problems that compare. You don't turn a "tub" around to maneuver! You simply *swing* around, the legs go with you, and move out wherever you choose. The time saved makes up for the slower travel speeds.

How do you make the choice? In simplest terms, the walker is best where flotation is a major problem, where deep digging and long reach are required, or where you have huge quantities of material to be moved at the lowest possible cost per yard.

Walkers don't need or use mats in soft ground. You don't have profits tied up in used mats when the job is done. Walkers have stability that allows them to work in precarious locations out of the question for crawlers.

Don't misunderstand. The walking dragline won't cure all excavating cost woes. There are jobs where crawler machines are better by far. And, there are jobs where you will throw away profits by using anything *but* a walker.

If there's a question in your mind, and you are interested in making a good profit on a job, you should know the facts before you make an investment. We'll welcome the opportunity to talk more about *how* walkers work . . . *where* they work best.

We may tell you *not* to buy a walker. Remember, Bucyrus-Erie builds crawlers, too.

(For answers to questions, write Bucyrus-Erie Company, Dept. 2L60, South Milwaukee, Wisconsin.)

CLEANING AND WIDENING of drainage canal in bayou country of southeast Arkansas is sticky job for Kenyon Construction Corp. Kenyon is handling it with his Bucyrus-Erie 480-W walking dragline equipped with a 15-yd. bucket, 160-ft. boom. Machine is handling between 6,000 and 12,000 yds. per station. Contract was awarded on a bid of 7.6¢ per yard.

BUCYRUS ERIE

. . . the most respected name in the field

FOR 50 YEARS...
Finest in the Field!
Rely on the bucket contractors rely on. The Omaha Dragline Bucket gives full load with every cast. Perfect balance makes it easy to spot dump. Alloy steel cutting teeth stay sharp, tough and ready. Strike pay dirt now! Complete information and specifications await your letter.
DRAKE-WILLIAMS MOUNT • OMAHA, NEBR.
OMAHA
DRAGLINE BUCKETS

New Equipment . . .

Continued from page 59

the power-controlled Hyster D89A Lo-Speed towing winch is available.

The new power-controlled winches team with recently-introduced Hyster D89A regular and D89A Lo-Speed winches with conventional controls, providing a full selection of models to adapt Cat D8 and D9 tractors to any application requiring a tractor-mounted winch.

Available options include cable guide rolls and a fairlead assembly and choice of standard, fixed or swiveling drawbar.

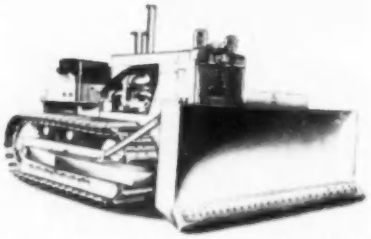
Dozer Blades

Manufacturer: International Harvester Co., Department EE, 180 N. Michigan Ave., Chicago 1, Ill.

Claims: Four specially-designed blades for use with the new International TD-25 diesel crawler-tractor —largest and most powerful machine of its type built by International—now are in production.

The direct-lift hydraulic bulldozer blade and the direct-lift cable bulldozer blade, with cutting edges of heat-treated, high-carbon steel, have a heavy-duty, arc-welded, box-framed, moldboard construction. Tilt is easily adjustable to 18 inches between blade ends, and there is a maximum pitch adjustment of 10°.

Weight of the hydraulic bulldozer blade is 8,720 pounds, and that of

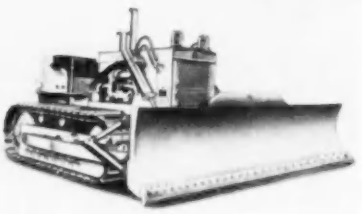


the cable model 7,950 pounds. Blade length is 12 feet 3¾ inches. Height is 49 inches.

The direct-lift hydraulic Bullgrader and direct-lift cable Bullgrader blades also have cutting edges of heat-treated, high-carbon steel, and the same construction as the dozer blades.

Bullgrader blades are easily angled from straight to 25° right or left, and tilt is quickly adjustable to 12 inches between blade ends.

The design of the Bullgrader blades virtually eliminates the wearing action



of the end plates when pioneering, side casting or cutting into a bank.

Weight of the hydraulic Bullgrader blade is 9,500 pounds, with the cable Bullgrader blade registering 9,820 pounds. Blade length is 14 feet 4¼ inches for the hydraulic model, and 14 feet 4½ inches for the cable version. Height of the blades is 44 inches.

Cutting Torch

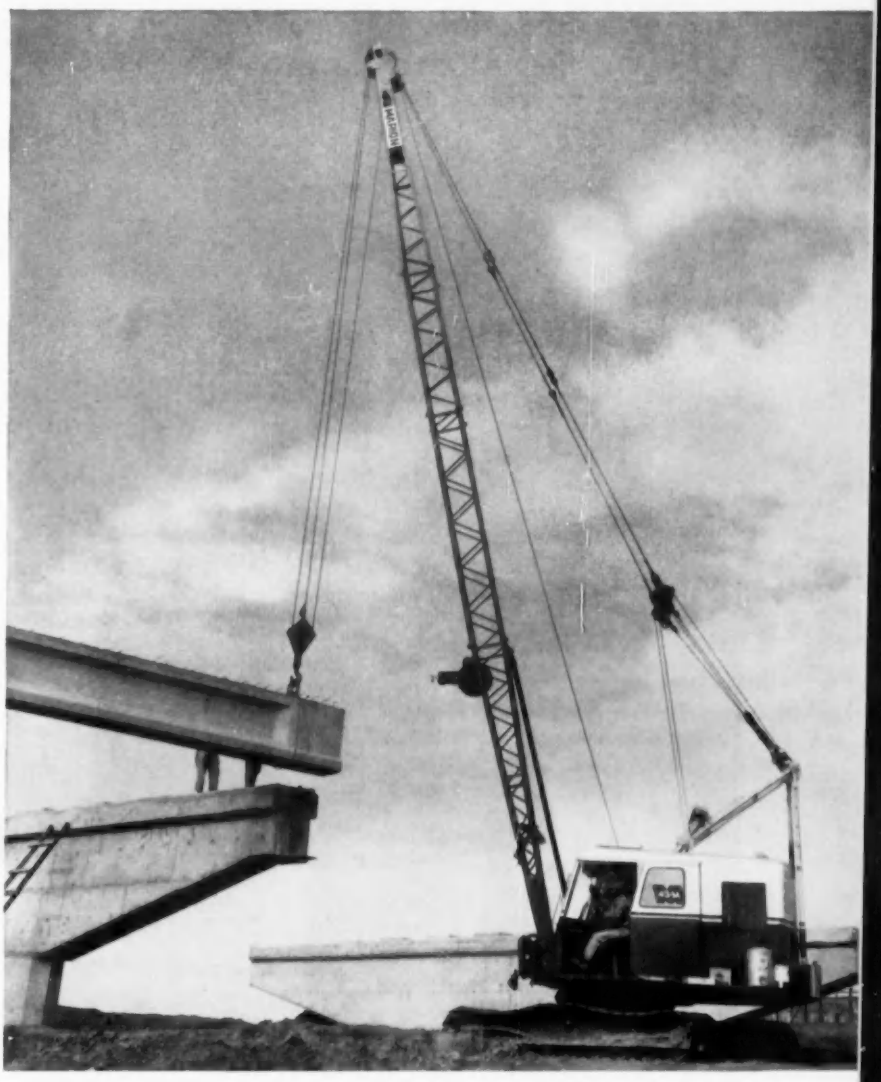
Manufacturer: Arcair Co., Department EE, P. O. Box 431, Lancaster, Ohio.

Claims: Arcair's H-55 torch is a heavy-duty model for industries whose work requires air on both sides of the electrode. Primary applications are in foundries for flash removal or for cutting holes on similar jobs which require frequent reversal of travel direction.

An outstanding improvement on the model H-55 is the pushbutton air

Continued on page 66

Pre-stressed concrete or steel . . . . You can't find a better BRIDGE BUILDER



27-ton crane muscles, supplemented by dragline and clamshell help as needed, made this Marion 43-M a triple-threat machine on Oklahoma's largest bridge using prestressed concrete beams.

This Marion wears 36-inch shoes on 15-foot crawler belts that shrug at soft footing, even when handling heavy loads. Its torque converter and foot accelerator let the operator inch big loads into place with ease, confidence and accuracy.

The availability of power load lowering, third drum and independent propel permits owners to custom-select outstanding performance features suited to their job needs.

Get the rest of the story about the 43-M's bridge-building exploits from your nearest Marion Distributor.

You get **MORE** WITH **MARION**

MARION POWER SHOVEL CO. — MARION, OHIO

A Division of Universal Marion Corporation

Get no-turn shuttle-hauling with

2-WAY CONTROLS — Operator always faces direction of travel . . . swings around *without leaving seat.* Pivoting seat with 2-way controls lets him operate with equal ease, comfort, safety in either direction. These unique features plus Dumptor's equal speeds in both directions eliminate need for turning at the loader . . . on the haul road . . . or at the dumping area.

2 WAYS TO DUMP — During *instantaneous gravity dump* . . . operator releases fast by-pass of fluid in hydraulic cylinders . . . gravity takes over . . . dumps load instantly. Or, operator can apply *controlled gravity dump.* Hydraulic system acts as a retarder. Gravity actually tilts the body . . . hydraulic pressure controls the rate of discharge.

BIG 15-TON Koehring® Dumptor®...

dual controls . . . pivoting seat . . . 24 mph speeds in both directions

- **Two steering wheels, throttles, brake pedals . . . one each located at *both* operating positions of *pivoting* seat.**
- **Directional travel and speed-range lever, and dump controls, centrally-located for 2-way operation.**
- **Speed range selections up to 24 m.p.h. in either direction controlled by easy-acting hydraulic clutches.**
- **Constant-mesh transmission with smooth torque converter drive . . . hydraulic power steering.**
- **2 ways to dump — *instantaneous* gravity dump . . . or *controlled* gravity dump with hydraulic cylinders.**
- **30,000-lb. payload capacity . . . 28.5% gradability . . . big, safe, 4-wheel airbrakes, plus parking brake.**

See for yourself how this big 15-ton Dumptor, with its unique shuttle haul advantage, can profitably boost output in your open pit, or underground mine. Call your Koehring distributor for a demonstration . . . do it today!

KOEHRING
DIVISION OF KOEHRING COMPANY
Milwaukee 16, Wisconsin

2 SIZES — In addition to the new 15-ton, Koehring builds a smaller, companion model 8-ton Dumptor (above). It has a ton of strength for every ton of payload capacity . . . 6 H.P. for every ton of loaded weight . . . 3-speed travel in both directions . . . 1-second dump . . . many other cost-cutting advantages for heavy-duty off-road hauling. Put Koehring Dumptor on your work.

LOAD WITH KOEHRING — Get lowest costs on hauling, stripping, loading . . . team Dumptors with Koehring heavy-duty shovels. ½-yard 205 is shown above. Other sizes up to 3-yards . . . including high-lift stripping shovels. Fully convertible to clamshell, dragline, lift cranes. Also check sensational new Koehring Skooper — free-swinging, full-revolving, 2-yard loader. KB4

TRIAL SAMPLES

Of World-Famous WHITMORE'S Lubricants NOW IN AEROSOL SPRAY-ON CANS!

HANDI-LUBE LIQUID GEAR COMPOSITION

For open gears, sliding surfaces—exclusive formulas eliminate metal to metal contact, keep wear on the lubricant not the metal—no breakdown even after prolonged use under water—available for every climatic condition—packaged in handy 16-oz. aerosol spray-on containers or in bulk containers—send for a free trial sample.

WIRE ROPE SPRAY LUBRICANT

Exclusive formulas for lubricating and protecting wire rope, chain, springs. Penetrates to the core of wire rope minimizing internal friction and increasing usable life up to 300%—special protective qualities absolutely eliminate corrosion—non-gumming qualities reduce "carry-back"—packaged in handy 16 oz. aerosol spray-on containers or in bulk containers—send for a free trial sample.

65 YEARS OF LEADERSHIP LUBRICATING THE FOLLOWING:

- Open Gears, Dipper Sticks, Cams
- Enclosed Gear Cases
- Wire Rope and Cable
- Hydraulic Units, Torque Converters
- Roller, Ball, and Sleeve Bearings
- Speed Reducers

Est. 1893

THE WHITMORE MANUFACTURING CO.

LUBRICATING ENGINEERS

CLEVELAND 4, OHIO, U.S.A. PHONE: VULCAN 3-7272

New Equipment . . .

Continued from page 62

control valve in the torch handle. Either ½ or ⅝-in. diameter electrodes can be used. It is heavily insulated to guarantee long maintenance-free service.

As with other models of the patented Arcair torch, it requires only compressed air and welding current to cut or gouge any metal.

Tournapull Transmissions

Manufacturer: LeTourneau-Westinghouse Co., Department EE, Peoria, Ill.

Claims: Two transmissions are available for the model D Tournapull. Equipment users have their choice of torque converter or conventional manual shift types.

The new torque converter version of the prime mover can be had with any of the standard "D" size interchangeable trailing tools, including the 9-yd. scraper, 11-ton rear dump or 10-ton mobile crane. Some rearrangement of components is involved, but most dimensions remain unchanged. The unit retains its 143-hp GM diesel engine.

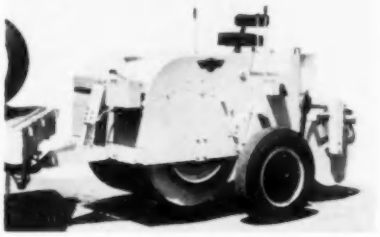
The new transmission is being built for L-W by Allison Div., General Motors Corp. It consists of a single-stage, multiple-phase, four-element torque converter combined with a heavy-duty, power shift gear box. Four forward and two reverse ranges provide speeds up to 30 mph.

According to L-W engineers, the torque converter transmission extends D Tournapull flexibility. For jobs with widely-varying conditions it will automatically adjust power output for maximum efficiency and production speed, regardless of load or terrain.

Self-Trailing Roller

Manufacturer: Essick Mfg. Co., Department EE, 1950 Santa Fe Ave., Los Angeles 21, Calif.

Claims: Hydraulic operation of self-trailing wheels for maximum portability is offered by the new model 650-C two-wheel Essick tandem roller. Weighing from 4½ to 6½ tons, the new tandem increases the number of Essick tandem rollers available to 15 models. It offers self-trailing for the size roller most normally requiring portability.



During rolling operations, the travel wheels are retracted upward to a high position, offering maximum clearance. For the few instances where close wall clearances are necessary, the travel wheels can be quickly and easily removed. Heavy steel construction and positive 3-way wheel support lock insures maximum safety during all types of trailing situations.

Finger-tip manipulation of two individual valves controls the power to operate the trailing mechanism. The valves are located at the front of the roller where all movement can be seen by the operator.

The model 650-C roller has dual controls accessible from either of the two seat positions, with hydraulic steering lever located between seat positions. It has a 4-cylinder line 32-hp Continental water-cooled engine. The compression roll produces 228 pounds per lineal inch compression with water ballast.

THE 40-R

Ability to handle the most punishing work and be ready when you need it makes the BUCYRUS-ERIE 40-R the most outstanding rotary drill on the market, under all drilling conditions

In Granite-Hard Formations operator can exert maximum down pressure on the bit for most effective penetration.

In Soft Formations operator increases rotating speed, eases the down pressure and keeps air velocity high so that the bit will not be buried or choked in cuttings.

In Fissured Formations the 40-R instantly adapts to each new set of conditions without stopping the operation.

For illustrated bulletins on the 40-R (diesel or electric for drilling 6¾ to 9-in. holes) or the 50-R (full electric for drilling 9⅞ to 12¼-in holes) write Dept. 1B59, Bucyrus-Erie Company, Drill Division, Richmond, Indiana.

BUCYRUS ERIE®

Builds Better Equipment

These PEP units are compact, highly adaptable. Each size is available as an engine assembly, or in open or enclosed power units — equipped to fit your particular job.

put new PEP* into your jobs

Built for tough, demanding tractor service, Allis-Chalmers "Packages of Economical Power" will put real punch into your jobs. They are designed for hard work, and the thousands in daily service prove they can *deliver*.

These POWER-CRATER engines, with their short-stroke design, provide economical, big-power output. Allis-Chalmers' own trigger-quick governor keeps speed changes at a minimum, regardless of load variations.

These units are easy to maintain, too, with advantages like removable wet-type cylinder liners.

Parts and service are close by — at thousands of Allis-Chalmers dealers. Call on your dealer today to put new PEP into your powered equipment. Allis-Chalmers, Milwaukee 1, Wisconsin.

*Packages of Economical Power			
	B-125	G-149	G-226
Displacement, Cu. In.	125.2	149	226
Horsepower (gasoline)	28.3 @ 1900 rpm	45 @ 2000 rpm	67 @ 1800 rpm
Fuels: Gasoline, kerosene, distillate, and natural gas, plus LPG for the G-149 and G-226. Also diesel engines are in various models up to 516 h.p.			

POWER-CRATER is an Allis-Chalmers trademark.

ALLIS-CHALMERS

***POWER* FOR A GROWING WORLD**

BC-24

B-501

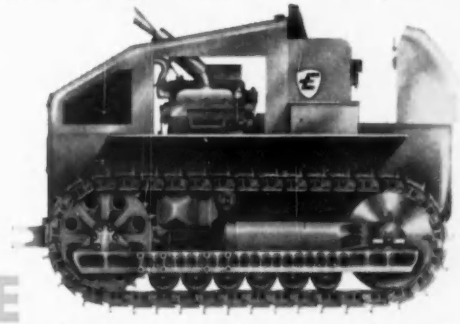
WHAT'S THE DIFFERENCE IN TRACTORS ?

YOU'LL BE SURPRISED!

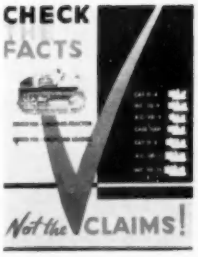
Send for comparative Fact Sheet, showing vital statistics of the great

EIMCO 103

tractor series as compared with other leading makes.



WHAT A DIFFERENCE



Eimco advanced engineering and quality craftsmanship makes!

Write to The Eimco Corporation, P.O. Box 300, Salt Lake City 10, Utah for Fact Sheet and Specifications on these new 100 HP Crawler-Tractors, engineered and built as only Eimco can build them . . . to fit your jobs, and needs.

Eimco 103 Tractor and Dozers
Eimco 123 Front End Loader
Eimco 133 Steel Mill Front End Loader
Eimco 143 Log Loader

"ADVANCED ENGINEERING AND QUALITY CRAFTSMANSHIP SINCE 1884"

THE EIMCO CORPORATION

EIMCO

TRACTOR LOADER DIVISION

634 SOUTH 4TH WEST
SALT LAKE CITY, UTAH — U.S.A.

EXPORT OFFICE: 51 - 52 SOUTH STREET, NEW YORK, N. Y.
BRANCHES AND DEALERS IN PRINCIPAL CITIES THROUGHOUT THE WORLD

New Trade Literature

Subject: **Wellpoints**
Content: A 4-page bulletin explains various types of Moretrench wellpoints. Component features of the 2-in. self-jetting wellpoints are illustrated in a cutaway illustration. Other types shown are the 1½-in. self-jetting point; the 2-in. Moreflow drawdown type; 2-in. open type Moreflow; and the low-cost expendable type X. The various soil conditions to which they are suited are covered.
Where to get: Moretrench Corp.; Department EE, Rockaway, N. J.

Subject: **¾-Yd. Crane-Excavator**
Content: A 20-page catalog describes the Bay City series 40 crane-excavator. As a crawler-mounted ¾-yd. machine, it is convertible to crane, dragline, clamshell, shovel and hoe. As an erector's crane, the Bay City model is available as a 20-ton crawler crane; 25 and 30-ton truck-mounted CraneMobile; and 25-ton self-propelled CraneWagon. Detailed photos of major parts and assemblies are shown in 55 pictures. A special two-page spread shows 23 job photos.
Where to get: Bay City Shovels, Inc., Department EE, Bay City, Michigan.

Subject: **Electric Plants**
Content: A 12-page folder illustrates the complete line of standard Kohler electric plants. The plants —for stand-by or sole supply— are available in sizes ranging from 500 watts to 100,000 watts. Ask for folder E344.
Where to get: Kohler Co., Department EE, Kohler, Wis.

Subject: **Heavy-Duty Screens**
Content: A 16-page booklet describes the Pioneer line of heavy-duty Mesabi screens. Among the improvements made recently to the Mesabi screen line is one of major importance, according to the bulletin. This is the addition of a secondary spring-type screen suspension which eliminates transfer of vibration to supporting structure, increases screen efficiency and reduces strain on screen assemblies. Illustrations of this new type screen suspension on both portable plant-mounted screens and stationary installation screens are shown. A cutaway view of the screen shaft assembly is also included, showing in detail, location of shaft, bearings, pulleys, flywheels and other component parts. Manufacturer's notes on proper screen installation are also given in the booklet. Ask for form 651A.
Where to get: Pioneer Engineering Div., Department EE, Poor & Co., 3200 Como Ave., Minneapolis, Minn.

Subject: **Dragline Buckets**
Content: Full data on a complete line of dragline buckets, including medium weight and lightweight buckets, is contained in a folder by M. P. McCaffrey, Inc. Comparative photos demonstrate advantages of buckets in field operation. Detailed, easy-to-read specification charts are provided.
Where to get: M. P. McCaffrey, Inc., Department EE, 2121 E. 25th St., Los Angeles 58, Calif.

Subject: **Flooding Problems**
Content: Rural and urban communities around the country are solving many of their flooding and sedimentation problems with the help of the federal Small Watershed Program. Case histories from several areas in which the problems have been licked are contained in an 8-page Caterpillar booklet, *Small Watershed Program is Paying Off*. For example, at Fort Laramie, Wyo., a citizens flood control committee endorsed construction of a small watershed project to control flooding, which caused an average annual damage of $19,280. Six floods during the preceding 31 years had caused individual damages far in excess of this figure. Benefits from the program far exceed the average annual cost of $10,940. Another case history cites lack of adequate drainage in Florida's Lake Placid-East Chain of Lakes area. It is being solved by local residents through a small watershed program which will provide suitable outlets for an allowable fluctuation in lake stages. Ask for booklet No. 33454.
Where to get: Caterpillar dealers or Caterpillar Tractor Co., Department EE, Peoria, Ill.

"—and the present-day supervisor should treat employees with kindness, understanding, consideration, personal respect, courtesy . . . "

Subject: **Compressor Line**
Content: All-weather operation and other features of six models of Gardner-Denver rotary portable air compressors ranging from 85 to 900 cfm, are described in an 8-page bulletin, *Rotary Portable Compressors*. Specifications are listed for the small 85-cfm air-oil cooled model RP85, as well as the five larger water-oil cooled compressors. Photos show typical heavy-duty applications. The engineering principles responsible for all-weather operation and the elimination of "dry starts" during cold weather are fully described both by text and illustration. Ask for booklet RC-1.
Where to get: Gardner-Denver Co., Department EE, Quincy, Ill.

Subject: **Drilling & Boring Equipment**
Content: A 12-page bulletin covering the KA-MO line of horizontal, vertical, and angular drilling and boring equipment is available from the Kwik-Mix Co., a division of Koehring Co. A wide variety of air, hydraulic, electric, and gasoline powered drills make up the line. Photos show the equipment working in clay, sand, gumbo, frozen ground, shale and limerock. A special feature of the bulletin is a handy reference guide to the

KA-MO line, listing drill size, type of cutting head, hex. drive size, drill weight, drill feed, drill motor and applications of each model. Included is a table of specifications for both hand feed track and power feed track units. Another table shows boring capacities, for a given horsepower, of drills from 2¼ to 36-in. diameter. Various types of specialized cutting heads available for KA-MO drills—including spiral, drum and "rock-lifter" heads—are covered in a special section of the bulletin. Ask for KMO-633.

Where to get: Kwik-Mix Co., Department EE, Port Washington, Wis.

Subject: **Eimco Excavator**

Content: A 12-page bulletin outlines the use of the Eimco 105 excavator on three major heavy construction jobs in the United States. Performance facts and figures are given in short case histories on the Glen Canyon dam tunnels in Arizona; the Fort Pitt tunnels in Pittsburgh; and the Mammoth Pool diversion tunnel in California's High Sierras. Photos show the unique overhead loading action and maneuverability of the model 105 in actual use on these jobs. English and metric specifications of the model are listed. Ask for bulletin L-1091.

Where to get: Eimco Corp., Department EE, P. O. Box 300, Salt Lake City 10, Utah.

New Movies . . .

Subject: **Tractor Shovels**

Content: Seven 20-minute color sound-slide films teach the care and maintenance of Michigan tractor shovels. The strip films are pitched to the semi-skilled mechanic—someone familiar with basic material handling machinery and servicing tools but unfamiliar with torque converters or power-shift transmissions. They instruct through the eye and ear. Step-by-step procedures are projected slowly frame-by-frame as a long-play record explains the technique in simple language.

Where to get: Construction Machinery Div., Department EE, Clark Equipment Co., Pipestone Rd., Benton Harbor, Michigan.

RUGGED AND RIGHT FOR YEAR 'ROUND WORK

in really cold weather!

MARION
RODELS AND HOISTS

Heated Floors Allow Landers & Griffin, Inc. To Keep Working All Year On Route 93 in New Hampshire.

Six Marion units with heated floors from the truck exhaust have made it possible for one contractor to keep going all year in the really cold White Mountain region.

Another six units owned by the contractor but with unheated floors are also on-the-job. All twelve have Model MFR bodies with a capacity of 11 to 12.3 yards. Marion hoists are twin underbody arm type Model HD-88.

Payload performance on the six with heated floors averages 1800 yards per 11-hour shift, traveling both uphill when loaded and in heavy traffic.

The prime contractors, Landers & Griffin, Inc., jointly sponsored with Morrison-Knudsen Co., are building 4.05 miles of Route 93 at an estimated cost of $2.7 million.

Ed Graves, Equipment Supt., says, "We like Marion bodies and hoists very much. We have used Marions for a long time and will continue to do so. The service provided by Marion's Distributor is beyond compare."

If you want to keep going and ahead of schedule, why not see your Marion Distributor or write direct for profit facts.

MARION METAL PRODUCTS CO.
Marion, Ohio, U.S.A.

HERE ARE 3 GOOD REASONS FOR BUYING A BUCYRUS-ERIE BUCKET NOW!

1. Bucyrus-Erie buckets have a KNIFE ACTION that cuts through material fast and easy.

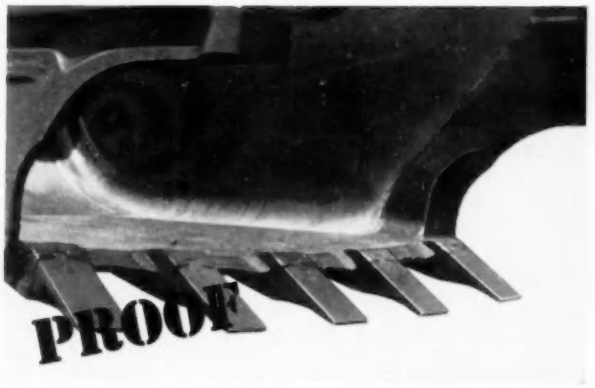
2. BOIL ACTION design of the bucket and cutting edges moves dirt back into the bowl effectively, fills a heaped load on every pass.

3. A special alloy developed by Bucyrus-Erie makes these buckets last longer. It is tough, with high impact strength, and greater resistance to skid wear.

Enjoy extra profits with a new Bucyrus-Erie dragline bucket. Size for size, you'll move *extra yardage*. Make the change *now!* See your Bucyrus-Erie distributor, or write Bucyrus-Erie Company, South Milwaukee, Wis., Dept. 2R59.

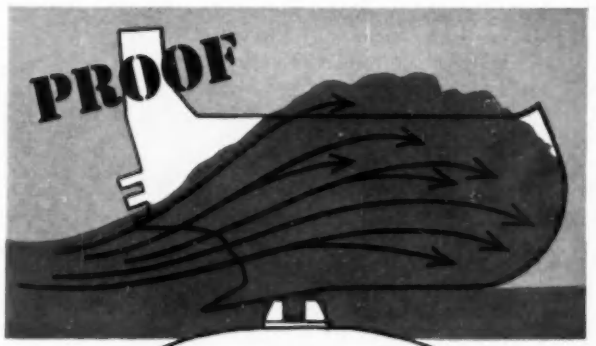
BUCYRUS ERIE®

Builds Better Equipment



THIS SERRATED EDGE is thinner than the base for high-speed "slice action" digging.

Below: **BOIL ACTION** fills bucket every pass.



Buckets are available with baskets in single taper (front to back). Some heavy-duty sizes have double tapered basket shown (front to back and bottom to top).

TO ADVERTISE: All advertising in this section is payable in advance. Rate $1.00 per line, or $12.00 per inch of 12 lines. Minimum charge $4.00. No discounts; no commissions. Please count your copy carefully to avoid delay. Each line contains 41 characters (34 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number, if blind advertisement is desired. Be sure to enclose the correct amount of money with your order. Closing date—10th of preceding month. Example: January closes December 10th.

TO INQUIRE: Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of Excavating Engineer, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

LARGE SHOVELS, CRANES, DRAGLINES — 3 YDS. & UP

HEAVY EXCAVATION EQUIPMENT
DRAGLINES, SHOVELS, CRANES, DRILLS, TRUCKS

15-W B-E elec. drag, 215', 12-yd.
450-W B-E diesel drag, 165' w/extra 10, 12, 13 & 14-yd. buckets.
9-W B-E elec. drag, 165', 10-yd.
9-W B-E diesel drag, 165', 12-yd.
7-W B-E diesel drag, 140', 7-yd.
7400 Marion diesel drag, 175', 13-yd.
7400 Marion elec. drag, 175', 12-yd.
625 Page diesel drag, 160', 9-yd.
621-S Page diesel drag, 125', 7-yd.
7200 Marion diesel drag, 135' w/6 or 7-yd. bucket.
200-W B-E diesel drag, 125', 6-yd.
5-W B-E diesel drag, 100', 6-yd.
2400 Lima elec. drag, 130', 6-yd.
2400 Lima diesel drag, 130', 6-yd.
4500 Manitowoc drag, 120', 5-yd.
120-B B-E elec. drag, 115', 5-yd.
3900, 3500 & 3000 Manitowoc cranes.
111-M Marion drag, 100', 4-yd.
1601 Lima 4-yd. shovel/drag.
1055 P&H drag, 80', 3½-yd.
1201 Lima dragline, 85', 3-yd.
54-B B-E drag, 80', 2½-yd.
5560 Marion 26-yd. elec. shovel.
5480 Marion 18-yd. elec. shovel.
151-M Marion 7-yd. elec. shovel.
170-B B-E 6½-yd. elec. shovel.
4161 Marion 6-yd. elec. shovel.
2400 Lima 4½ and 5½-yd. H. L. shovels.
120-B B-E 4-yd. elec. shovel.
111-M Marion 4-yd. standard shovel.
1201 Lima & 54-B B-E standard shovels.
Model T-650 Reich drill truck mtd. rotary and down-the-hole.
Ingersoll-Rand truck mtd. & crawler mtd. Drillmasters.
Joy truck mtd. rotary air drill, 6" holes.
Euclid trucks, dozers, attachments, etc.

FRANK SWABB EQUIPMENT CO., INC
313 Hazleton Nat'l Bank Bldg.
Hazleton, Pa.
GLadstone 5-3658

Near New
Model 71-B Bucyrus-Erie
Crane (60-Ton)
Used one job only—Less than 500 hours—

Actually like new
160-foot boom—40-foot jib
Adaptable to 3-Yd shovel front or 3½ to 4-yd. bucket as dragline.

Special
Laced tubular cord angle boom
Rigid gantry and counterweights

S/N 118536, powered by model 62306-RD GMC diesel engine—Series 6-110, crawlers 16' 9½" x 36'. For further information, contact

FISHER CONTRACTING CO.
Attn: Jack E. Brown
P. O. Box 6303 Phoenix, Ariz.
Phone: AL 8-7741

Marion type 7400 walking electric dragline, serial #7504. Equipped with Ward-Leonard control, 650 H.P. synchronous motor, 200 ft. boom with 25-ft. removable section, and an 11-yd. Hendrix type H. S. bucket. Located in Kansas.

EXCAVATING ENGINEER
Box 3752
South Milwaukee, Wis.

Euclids—Rear, Botton and Scrapers

12-yd. Bucyrus-Erie dragline.
9-yd. Bucyrus-Erie dragline.
6½-yd. Bucyrus-Erie shovel.
4-yd. Bucyrus-Erie shovel.
4-yd. Bucyrus-Erie dragline.
2½-yd. Bucyrus-Erie shovel and dragline.
5-yd. Manitowoc dragline.
6-yd. Lima dragline.
Other equipment available, not listed above.

WILLIAM LUBRECHT, III
Construction Equipment
211 W. Diamond Ave. Hazleton, Pa.
Phone: GLadstone 5-4041 or 5-0253

SMALL SHOVELS, CRANES, DRAGLINES — UP TO 2½ YDS.

2 Used Link-Belt model K580 crawler shovels, 2½-yd. dippers, single electric motor drive, 440 volts, 3 phase, 60 cycle. Good condition, cheap.

CROOK CO.
2900 Santa Fe Ave. Los Angeles 58, Calif.
Phone: LUdlow 8-7214

Model 2460 Warner & Swasey Gradall excavator. Delivered new in 1957, equipped with GMC diesel engine, 24" and 36" buckets and ripper tooth. In good operating condition. Priced to sell.

J. P. WAITE CONSTRUCTION CO.
3304 W. Pierce St. Milwaukee, Wis.
EV 4-1900

Model 604 Lima 1¼-yd. dragline, equipped with 80' pendant suspended boom, dragline fairlead, long wide crawlers, Cummins diesel engine. Delivered new in 1951. Excellent operating condition. Priced at $22,500 with no trades.

J. P. WAITE CONSTRUCTION CO.
3304 W. Pierce St. Milwaukee, Wis.
EV 4-1900

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2 Manitowoc model #3500 excavators, equipped with 45-ft. boom, long handle and 2 and 2½-yd. dipper, powered by Cat D17000 engines. Serial numbers #3647 and #3804.

EXCAVATING ENGINEER
Box 3751 South Milwaukee, Wis.

SMALL SHOVELS, CRANES, DRAGLINES — UP TO 2½ YDS.

Excavators

1 Bucyrus-Erie 30-B combination dragline and lifting crane, 45-ft. of boom, powered by 4-71 GMC engine. This machine is near new. The chance to own the best for less. Located at Denver.
1 Northwest model 3 dragline, powered by Wisconsin gas engine. For its age you just can't find a cleaner machine. It's worth the asking price for a standby machine. $3,750 FOB Denver.
1 Lima 604 shovel, powered by Cummins H1S diesel engine. There is a lot of production left in this machine and it is priced for a quick sale. Located at Casper.
1 Bucyrus-Erie 10-B, powered by Hercules gas engine, equipped with a hoe. An older machine that still operates.
1 Link-Belt LS71 equipped as a dragline powered by Int. UD14A engine, 45' boom with pendant suspension. A very clean machine.

Excavator Attachments

1 1-yd. Hendrix dragline bucket.
2 38-B shovel attachments.
1 Osgood hoe attachment for Osgood 200.
2 22-B shovel fronts.

Asphalt Equipment

1 848 Barber Greene asphalt plant, equipped with feeder, bucket elevators, rotary drier, gradation unit, dust collector, pug mill, Cleaver Brooks steam boiler, GM model 4-71 engine, Caterpillar model D13000 engines, also electric motors, wiring cables and panels that make this plant complete. We welcome inspections of this plant.

Trucks, Scrapers and Bottom Dumps

2 Euclid 7LD rear dumps, S/N 8887 and 8888 powered with Buda diesel engines, equipped with Parkersburg Hydrotarders, Fuller 5-speed transmission. These trucks are operable. Price $5,000 per unit.
6 WD60 Koehring dumptors, S/N D-3651, D-3867, D-4202, D-4550, D-4551, D-4009, powered by GM diesel engines. These machines rate a very clean classification.
2 Caterpillar DW20 scrapers. You will want to check the price and condition of these machines if you are in the scraper market.
1 Euclid model S7 with 18:00 x 25 16-ply tires. We have made extensive repairs to this machine.
3 LeTourneau super C Tournapulls. Tires range from fair to good. These machines are all capable of operating. Located at Casper.

Air Tools

2 Joy crawler drills, drill class CTM1. These two drills are mates, both have had only one season's use. There is a good stock of extra parts with these drills.

Tractors

1 Near new Caterpillar D9 equipped with push block, front power control unit, new rails, rollers and sprockets rebuilt. This machine was new in June of 1958.
1 Caterpillar No. 9 ripper, two shanks, a near new ripper at a tremendous savings.

Misc. Equipment

1 Woods Roadmixer model 54, powered by Chrysler industrial engine PTO for D8.
1 Buda generator model PCD-1879 BM-D 3091-C Novo gas starting engine connected to Westinghouse generator AC440 volt, 390 amps. 3-phase, 60-cycle Westinghouse exciter. This unit is ready to go to work.

THE COLORADO BUILDERS' SUPPLY CO.
1534 Blake St. Denver 2, Colo.

SMALL SHOVELS, CRANES, DRAGLINES — UP TO 2½ YDS.

Dallas, Texas

15-B Bucyrus-Erie dragline, w/¾-yd. bucket, serial #7292S, fair condition.
15-B Bucyrus-Erie 40-10 dragshovel, w/Cat D315 diesel, unit 76 tractor type tracks, unit 79B extra counterweight, set street plates, S/N 118938, reconditioned.
22-B Bucyrus-Erie dragline, 35' boom, Cat diesel engine, S/N 106953, reconditioned.
22-B Bucyrus-Erie combination 60-10 clamshell excavators, 45' boom, unit 79 extra counterweight, tractor type tracks, Cat D318 diesel, ¾ yard Blaw Knox clamshell bucket, S/N 119704, excellent condition.
P&H ½-yd. dragline, S/N 59060, fair condition.
41 Lorain dragline, S/N 14432, good condition.
25 Northwest dragline, 40' boom, GM diesel, S/N 11315, good condition.
K-12 Insley hoe, S/N 55690, good condition.
326 Marion shovel and dragline, Murphy diesel, S/N 8488, good condition at Big Springs, Tex.
K-12 Insley dragline, 35' boom, U9 IHC gas engine, ¾-yd. bucket, S/N 1891, reconditioned.
Hoe attachments complete for T-35 Schield Bantam and LS-80 Link-Belt.
Shovel attachments for LS-80 Link-Belt and 10-B Bucyrus-Erie.

Lubbock, Texas

22-B Bucyrus-Erie hoe, Cat diesel, S/N 92141, good condition.
28 Northwest truck crane, 45' boom, Dart carrier, S/N 20218, excellent condition.

Houston, Texas

15-B Bucyrus-Erie hoe, UD-9 tractor type tracks, S/N 59821, reconditioned for as dragline.
15-B Bucyrus-Erie dragline, Esco bucket, S/N 119144, rebuilt.
22-B Bucyrus-Erie dragline, IHC UD-14, 26" tracks, 40' boom, Hendrix bucket, S/N 75283.
22-B Bucyrus-Erie hoe, IHC UD-14A, S/N 100141, reconditioned.
30 Lorain shovel, gas engine, S/N 10198 at Taylor, Texas.
TL-25 Lorain hoe, Cat D315, 22" shoes, S/N 23276.
2—10' boom inserts for Bucyrus-Erie 22-B.
Hoe attachments for 15-B Bucyrus-Erie, 22-B (cambered booms).

BROWNING-FERRIS MACHINERY CO.

Dallas
305 Exposition Ave. TA 3-8121

Longview
P.O. Box 367

Lubbock
2424 Clovis Rd. PO 5-7455

Houston
2619 Texas Ave. CA 5-3231

Shovel Attachments

Bucyrus-Erie tunnel shovel attachment for 38-B consisting of 15' boom, 12' handle, 1½-yd. dipper. Excellent condition. $4,500.
Lorain 40' boom for model TL-25. Good condition. $450.
Fairlead attachment for Northwest No. 25. Excellent condition. $520.

Shovels

Northwest 80D, 2½-yd. shovel, 30" tracks, 25' boom, 22'-6" stick, Murphy diesel engine. Reconditioned. 30 day guarantee. $42,500.
Loram 820, 2-yd. combination shovel, clamshell and drag line, 65' boom, pendant suspension, 34" tracks, Rudomatic tagline, fairhead, Cat D13000 diesel engine. Being rebuilt. Inquire for price.
Lorain TL-25, ¾-yd. hoe, 22" tracks, powered by Cat D315 diesel engine. $7,800.

Truck Cranes

Lima 44T truck crane, 25-ton combination clamshell and lifting crane, 80' boom, 30' jib, Rudomatic tagline, Dart carrier 9' wide, 10—12.00x 24-14 ply tires, Waukesha engines. Very good condition. 30 day guarantee. $30,000.

Earthmoving Scrapers

Two (2) Euclid S-18 (1957) tractor scrapers, Allison 4-speed torqmatic transmission with model 28 SH, 21-yd. scrapers. Good condition. Each $30,000.
Six (6) Caterpillar DW20 tractor-scrapers with Cat No. 20 scraper (cap. 20 yds.) good condition. Each $22,000.

H. O. PENN MACHINERY CO., INC.
140th St. & East River New York 54, N. Y.

SMALL SHOVELS, CRANES, DRAGLINES — UP TO 2½ YDS.

Shovels & Cranes

Kochring model 304, ¾-yd. shovel, crawler mounted. Powered by International model UD14A diesel engine. Good operating condition. $5,500. FOB Elizabethtown, Ky.
P&H model 255A, ¾-yd. shovel, crawler mounted. 1956 model, powered by Caterpillar model D315 diesel engine. $14,500. FOB Elizabethtown, Ky.
Loram model 40, ¾-yd. shovel, crawler mounted. Powered by Waukesha 6MR gasoline engine. Shovel is in operating condition. $4,500. FOB Elizabethtown, Ky.
Loram model L-56-J, 1½-yd. shovel, powered by Caterpillar diesel engine. Serial No. 28713, 1957 model. NOTE: This shovel has been damaged in dirt slide. Could be rebuilt during winter at a large savings. $12,000. FOB Elizabethtown, Ky.
Loram model L-80, 1¼-yd. shovel, crawler mounted. Powered by Caterpillar model D13000 diesel engine. Shovel in fair operating condition. $12,500. FOB Elizabethtown, Ky.
Bucyrus-Erie model 51-B crane, long and wide tracks, 100' boom, 20' jib, pendant suspensions, 2-speed independent propel. Powered by Buda model 6DCB diesel engine. Crane in like new condition, very little use. Replacement cost $81,466. Price $69,000. FOB Louisville, Ky.
Bucyrus-Erie model 38-B, 1½-yd. dragline with long and wide track, 11'6" wide, 2'5" long, 33" pads, 70' boom, pendant suspension unit 79 extra counterweights. Powered by IHC model UD1091 diesel engine. Total weight 109,360#. Replacement cost $60,915. Like new condition, 4 months of rental service is all this dragline has been used. $49,900. FOB Louisville, Ky.
Bucyrus-Erie model 22-B heavy duty dragline, clamshell, 60' boom pendant suspension, lifting crane. Long and wide tracks, extra counterweights, 30" treads. Powered by IHC UD-525 diesel engine. Replacement cost $34,399.60. Price $24,500 FOB Louisville, Ky.
Bucyrus-Erie model 22-B, ¾-yd. capacity, basic machine. Powered by IHC UD525 diesel engine. Less than 3 years old. Excellent condition. $19,100 FOB Louisville, Ky.
Bucyrus-Erie model 22-B, ¾-yd. hoe, dragline combination. Powered by IHC model UD-525 diesel engine. Less than 3 years old. Excellent condition. $19,100 FOB Louisville, Ky.
2 Booms 35' from our rental fleet, like new condition, for above 22-B's. $950 each. FOB Louisville, Ky.
1 Hoe attachment like new condition for above 22-B's. $2,800 FOB Louisville, Ky.
Kochring model 304 shovel front attachment, ¾-yd. capacity. Like new condition. $1,900. FOB Elizabethtown, Ky.
Bucyrus-Erie model 10-B, ¾-yd. shovel, crawler mounted with Buda gas engine. $7,500 FOB Evansville, Ind.
Lorain model TL-20, ½-yd. crawler mounted dragline with 45' boom and powered by Waukesha gasoline engine. $7,500 FOB Evansville, Ind.

BRANDEIS MACHINERY & SUPPLY CO.
P. O. Box 1705 Louisville 1, Ky.
MElrose 7-1741

Loram TL-25 dragline with new Bucyrus-Erie ¾-yd. medium weight perforated bucket, with Caterpillar D315 engine. Very good condition. New fairleads. Price $11,000.

Call or Write

H. P. Cooper
Brookfield, Mo.

Model 25 Northwest shovel and hoe, serial No. 9835, with Caterpillar diesel engine 8B8624.
Model 25 Northwest ¾-yd. diesel shovel and hoe with GMC diesel engine. Serial No. 7723. Located in Seattle.
Unit model 1020, ¾-yd. shovel, serial No. 51256, powered with Chrysler gas engine.
Kochring Model 205 shovel and hoe, ½-yd. serial No. 52626, powered with International gas engine #17366. 1948 model.
Model L-41 Lorain hoe with Waukesha gas engine. Serial #17832.
38-B straight boom, 1½-yd. hoe attachment.
54-B Bare boom, 60-ft., no point sheaves. Excellent condition.

CLYDE EQUIPMENT CO.
3110 First Ave. So. Seattle 4, Wash.

SMALL SHOVELS, CRANES, DRAGLINES — UP TO 2½ YDS.

Model H-2 Hydrocrane mounted on Chevrolet truck chassis, equipped with 2 piece telescopic boom, rear outriggers. Fair operating condition. Priced to sell for $1,950 at our yard.
Model H-2 Hydrocrane mounted on Chevrolet truck chassis, equipped with 2 piece telescopic boom, hydraulically operated rear outriggers. Good condition. Priced at $2,500 at our yard.
Model H-3 Hydrocrane (Bucyrus-Erie) new in 1950, mounted on I.H.C. truck chassis, equipped with 2 piece telescopic boom, tandem outriggers, operator's cab, hydraulic tagline reel, hose, ½-yd. clamshell bucket, good condition.
Model H-3 Hydrocrane (Bucyrus-Erie) new in 1955, mounted on G.M.C. truck chassis, equipped with 2 piece telescopic boom, tandem outriggers, operator's cab, tagline reel, hose, ⅝-yd. clamshell bucket, very good condition.
Model 2460 Warner & Swasey Gradall excavator, new in 1957 equipped with GMC model 3031-C diesel engine, mounted on duplex 6x4 standard Gradall carrier. Attachments include 24" digging bucket, 36" digging bucket, heavy duty ripper. Machine used 2 seasons. Excellent condition.
Model 34 Lima ¾-yd. crawler mounted crane-clam-dragline-hoe combination, equipped with Buda gas engine, 35' boom, fairlead, tagline reel, hoe boom with hoe dipper. Priced to sell. Good condition.
Model 375 American crawler mounted dragline-clamshell combination, equipped with series 3-71 GMC diesel engine, long crawlers, fairlead, excellent condition.
Model 357 Unit wagon crane, equipped with 25' boom, tagline reel, new engine, overhauled machinery, repainted, excellent condition. Priced to sell.
Model 55 Lorain crawler mounted shovel, equipped with UD-18 IHC diesel engine, complete with 1-yd. shovel dipper, machinery partially overhauled and in operating condition. Our asking price is $2,500 but make us an offer.
Model 30-B Bucyrus-Erie 35-ton capacity Transit Crane demonstrator, equipped with 130' of boom, GMC series 4-71 diesel engine. Two speed gear box for main drive, power controlled lowering of load line, independent boom hoist. Mounted on heavy duty 6x4 truck carrier. Priced to sell at $55,000 FOB Milwaukee, Wis.

J. P. WAITE, INC.
3301 W. Pierce St. Milwaukee 1, Wis.

Bucyrus-Erie 15-B dragshovel—½-yd.
Bucyrus-Erie 19-B dragline—¾-yd.
Bucyrus-Erie 22-B dragline.
Hendrix dragline bucket complete—16-yd.
American ¾-yd. shovel & backhoe.
Pioneer 40" x 20" portable roll crusher.
Pioneer 16" x 16" roll crusher.
Portable conveyor 24" x 30' with dozer hopper, gas engine.
Portable conveyor 30" x 55' with 20 HP electric motor.
Portable conveyor 18" x 50' cleated belt with gas engine.
Barber-Greene 879A finisher.
Barber-Greene 702 ditcher.
Barber-Greene 550 loader.
Many other items. Call or write

THE ZECO CO.
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Minneapolis 14, Minn.

Bay City model 45, crawler, hoe, series 3.71 GM diesel engine, new in 1947, engine and machine completely rebuilt in 1959. $14,500.
American model 395 crawler hoe, series 4.71 GM diesel engine new in 1956, serial No. GS2039, very good condition. $15,500.
Michigan model c. 16 crawler combination dragline-clamshell, hoe, new Hercules gasoline engine, new in 1949, rebuilt in 1959. $6,500.
2 Ingersoll-Rand 600 Gyro-Flo portable air compressors, GM 6-71 diesel engines, serial numbers 11760 and 11767. $11,000 each.
Rex model 200 double Pumpcrete, powered by a model 6 MZA 203J Waukesha gasoline engine. Skid mounted, including Rex Pugmill Remixer—complete with misc. accessories and 1200 feet of 8" pipe, s/n CPD-316. $25,000.
Model 35 Ferguson tractor with rear mounted Everett trencher and front mounted Shawnee blade—good condition. $1,350.
2 Model 500 Heco 10-½ ton truck cranes s/n 58060 and 58073, Waukesha gasoline engines, Fuller torque converters, mounted on model 613 Heco carriers, both complete with all crane equipment, both units new and offered at dealer's cost.
All of the above F.O.B. cars Detroit, Michigan, subject to prior sale.

CONSTRUCTION EQUIPMENT CO.
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SMALL SHOVELS, CRANES, DRAGLINES — UP TO 2½ YDS.

Universal Wobbler feeder, 60" wide, 13 bar, 12½" pitch, complete with drives, electric powered, lubrication system, variable speed transmission. Good condition, original cost over $50,000. Will take $15,000 FOB location near Chicago, Ill.

Lorain MC425W 25-ton Moto crane, 50' tubular boom, automatic folding gantry, outriggers, aluminum floats and screws, new 1956, 3,900 miles on carrier, Waukesha gas engines in crane and carrier, excellent condition throughout.

AL. FISHEL EQUIP. SALES CO.
1318 No. Vandeventer Ave. St. Louis 13, Mo.
JE 5-1482

Bucyrus-Erie Hydrohoe attachment for H-3 Hydrocrane complete with 18" general purpose dipper, 20" utility dipper, 12" narrow dipper and all necessary fittings. Excellent condition. Complete $750.

Lorain model TL-25, serial #19697, with Waukesha gasoline engine, cambered boom hoe with Amsco rock bucket. Machine completely rebuilt. $9,500.

¾-yd. shovel front available for above machine.

P&H model 150 hoe, serial #13833 with gasoline engine, 20" dipper and ¾-yd. dipper. Good operating condition. $3,500.

P&H model 255A cambered boom hoe, serial #14436. Excellent value. $5,500.

Northwest model 25, serial #16381 hoe, ¾ yd. Amsco bucket. Caterpillar D318 diesel engine. Reconditioned and ready to work. $16,750.

Bucyrus-Erie model 22-B cambered boom hoe. Serial #101174. Caterpillar D318 diesel engine. Machine completely rebuilt. Other attachments available.

Lima model 802, year 1949, serial #5145. Caterpillar 17000 diesel engine, Kohler light plant, combination dragline and clamshell, 60' boom, extended crawlers, 36" treads. Recently completely rebuilt. $39,750.

Lima model 1201, year 1954, serial #329514. Cummins LI diesel engine, Kohler light plant, combination dragline and clamshell, 80' boom, high gantry, extended crawlers, 40" treads. Good condition. $63,500.

BINDER MACHINERY CO.
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MUrdock 8-0960

Bucyrus-Erie 54-B 2-yd. Hi-Front stripper S/N 41813. Year old Cat 337 torque converter engine. Good condition, $32,500.

Bucyrus-Erie 54-B 2-yd. Hi-Front stripper S/N 42571. Buda 1879 engine. Spare engine block, clutch, radiator, parts. $22,500.

Both machines can be seen working.

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Hopedale, Ohio
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MISCELLANEOUS EQUIPMENT

ENGINE BARGAINS

New unused Buda model 6B230 gasoline engine with radiator, clutch and electric starter. Suitable for 10-B, 22-T, 22-W, 24-L. $650 f.o.b. Erie, Pa.

New unused Buda model 6B273 gasoline engine $500 with radiator, clutch and electric starter, $700—suitable for 10-B, 22-T, 22-W, 24-L—f.o.b. Erie, Pa.

New unused Waukesha model 6WAKDU diesel enclosed power unit, with clutch and gasoline starting engine, for 48-L—$4,200 f.o.b. South Milwaukee, Wis.

Slightly used Buda model K428 gasoline engine, with radiator, clutch and electric starter, approximately 400 hours operation—suitable for 22-B, $450 f.o.b. Erie, Pa.

BUCYRUS-ERIE CO.
Mr. J. E. Smart SO 2-0900
South Milwaukee, Wis.

88-B Engine

Used Cummins diesel model LR1600—f.o.b. San Francisco, Calif.

9-W Engine

Cooper-Bessemer model JS-6D current model—never installed or operated—new engine guarantee—today's price approximately $60,000—will sell for $30,000.

BUCYRUS-ERIE CO.
Mr. J. E. Smart SO 2-0900
South Milwaukee, Wis.

MISCELLANEOUS EQUIPMENT

Caterpillar model D8 diesel tractor, serial 2U-20641SP, equipped with Gardner-Denver model WH600 tractor mounted compressor, Gardner-Denver model JMA hydraulic pump, model JTB tripod type boom, two model D99DT derrick type drills, chain feed mountings, with 7" cone for 12-foot steel changes, electric starting, crankcase guard, dry type air cleaner. Machine in excellent condition. $24,500.

Caterpillar model D7 diesel tractor, serial No. 3T-12918, equipped with model 7S straight blade bulldozer, model 25 rear mounted double drum cable control unit, crankcase guard, 20" grouser tracks. Fair to good condition. $11,000.

Caterpillar model D7 diesel tractor, serial 3T-3573, equipped with model 7S straight blade bulldozer, model 25 rear mounted double drum cable control unit, 22" grouser tracks. Fair condition. $6,000.

Caterpillar model D6, 74" diesel tractor, serial 9U-1227, equipped with model 46 front-mounted hydraulic control, new model 6-A hydraulic controlled angle blade bulldozer, electric starting, crankcase guard, 20" grouser tracks. Good condition. $13,500.

Caterpillar model D6, 60" diesel tractor, serial 8U-9277, equipped with model 6S hydraulic controlled bulldozer, model 46 front mounted hydraulic control, crankcase guard, lights, electric starting, oil type flywheel clutch. Machine in good condition. $14,500.

Caterpillar model D6, 74" diesel tractor, serial 9U-8265, equipped with used model 6-A angle blade bulldozer, used model 46 front mounted hydraulic control, crankcase guard, electric starting for gasoline starting system, 20" wide grouser tracks. Good condition. Price on application.

Caterpillar model D6, 74" diesel tractor, serial 9U-19024, equipped with used model 6-A angle blade bulldozer, used model 24 front mounted single drum cable control unit, crankcase guard, electric starting for gasoline starting engine, oil type flywheel clutch, 18" wide grouser tracks. Good condition. Price on application.

Caterpillar model D6, 74" diesel tractor, serial 9U-5969, equipped with model 6-A angle blade bulldozer, model 25 rear mounted double drum cable control unit, crankcase guard, track roller guards, electric starting for gasoline starting engine. Fair to good condition. $8,500.

Caterpillar model D6, 74" diesel tractor, serial 9U-26276, equipped with model 6-A angle blade bulldozer, model 46 front mounted hydraulic control, oil type flywheel clutch, crankcase and roller guards, electric starting for gasoline starting engine, dry type air cleaner. Tractor also has a Caterpillar model 25 rear mounted unit. Good condition. $12,500.

Caterpillar model D4, 60" diesel tractor, serial 7U-25463SP, equipped with model 4-S straight blade, hydraulic controlled bulldozer, new model 44 front mounted hydraulic control, electric starting for gasoline starting engine, 16" wide grouser tracks. Good condition. $7,500.

International model TD-24 diesel tractor, serial TDE 5394, equipped with Bucyrus-Erie straight blade bulldozer, Bucyrus-Erie model P-29 rear mounted double drum cable control unit, seven roller track frame, 22" grouser tracks. Good condition. $10,750.

Allis-Chalmers model HD-21 torque converter, diesel tractor, serial No. HD-21A-8528, equipped with Gar Wood model 281 rear mounted double drum cable control unit, Gar Wood straight blade bulldozer, roller guards, crankcase guard, lights, 26" grouser tracks. Good condition. $19,500.

Allis-Chalmers model HD-21 diesel tractor, serial HD-21A-8289, equipped with torque converter, Gar Wood straight blade bulldozer, rear mounted cable control unit, electric starting, roller guards, crankcase guard. Good condition. $19,500.

Caterpillar model DW10 diesel tractor, serial 1V2740SP, equipped with Caterpillar model 15 scraper, serial 4W-5359, Caterpillar model 21 cable control, serial 5C-4137, electric starting, power steering, air brakes, lights, 12:00 x 20 tires front and 21:00 x 25 rear on tractor, 21:00 x 25 tires on scraper. Price on application.

Caterpillar model DW10 diesel tractor, serial 1V2769SP, equipped with model 15 scraper, serial 4W-5397, model 21 cable control, serial 5C-4160, electric starting, power steering, air brakes, 12:00 x 20 front and 21:00 x 25 rear tires on tractor, 21:00 x 25 tires on scraper. Price on application.

MISCELLANEOUS EQUIPMENT

Caterpillar model D4, 60" diesel tractor, serial 2T-8776, equipped with Ulrich model 1U-39 hydraulic controlled loader, with ¾-yd. bucket, 78" wide, Caterpillar model 44 front mounted hydraulic control, counterweight box, 16" wide grouser tracks, crankcase guard, electric starting for gasoline starting engine. Good condition. $5,200.

Galion model T-500 tandem drive diesel motor grader, serial 1350, powered by Cummins model JN6B1 diesel engine, equipped with cab, scarifier, torque converter, power steering, hydraulic sideshift, lights, electric starting, four wheel brakes, 13-ft. blade, 14:00 x 24 tires front and rear. Good condition. Low hours a bargain. $9,500.

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Convert your spare time into steady income selling most popular line of belts and buckles with customer's personal initials, first name or nickname with miniature replicas of actual clams, shovels, draglines, backhoes, scrapers, bulldozers, graders, heavy dirt removers, etc., beautifully enameled also lapels, tie clasps, key chains, money clips, and cuff links. Excellent repeat business. We furnish you with refundable complete sales kit. Really nice part-time money producing items. For full particulars, write to

HOOK-FAST SPECIALTIES, INC.
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22-B 80-ft. Transit Crane boom consisting of one 30-ft. basic boom section, one 20-ft. insert section and three 10-ft. insert sections. This boom is fabricated from A-7 low carbon steel, is pin connected and rated at 25-tons at a 10-ft. radius. Included is a set of 3 point sheave boom machinery, a set of boom stops, a set of matched pendants for the 80-ft. boom, the yoke and bridle. Price $1,900 FOB.

BUCYRUS-ERIE CO.
South Milwaukee, Wis.

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Notes from the Manufacturers

Bros, Inc., Minneapolis, Minn., has signed an agreement with Tutt-Bryant Ltd., Sydney, Australia, to permit the manufacture of the Bros line of compaction and soil stabilization machinery in Australia. The Sydney firm is one of the major road machinery manufacturers in Australia, operating under similar agreements with Clark Equipment Co., Barber-Greene, Chain Belt and Fairmont Railway Motors, other major U. S. equipment manufacturers.

Bucyrus-Erie Co., South Milwaukee, Wis., has named William G. Barnes as sales manager, blast hole drills. He will report to George D. Grayer, manager of sales for the drill division. Barnes, who joined the firm in 1956 as a sales representative on the Mesabi iron range, had been sales engineer for blast hole drills since the fall of 1958. He formerly was a mining superintendent and engineer with the Aluminum Company of America. He also was employed by Climax Molybdenum and M. A. Hanna Co. Another B-E appointment is that of John A. Schmitz as service supervisor for commercial cranes and excavators. He will report to D. W. Pabst, service manager. Schmitz joined Bucyrus-Erie in 1946 as a test and design engineer. He served as supervisor of the firm's Oak Creek (Wis.) test grounds, and most recently as field engineer for small machines.

Crane Carrier Corp., Tulsa, Okla., has acquired the Maxi Division of Insley Manufacturing Corp., Los Angeles, Calif. The Los Angeles plant is being dismantled for reassembling in Tulsa, where production on the Maxi model has already started at the Crane Carrier plant. The Maxi division is the oldest and largest producer of self-propelled carrier vehicles designed for operation from the crane or shovel mounting. Crane Carrier manufactures a variety of carrier vehicles for concrete mixers, blast hole rigs, earth augers, cranes, dump trucks and other vehicles.

GM Diesel Div., General Motors Corp., Detroit, Mich., has released a 1960 service school schedule. Programs of one, two, and three weeks covering construction, operation, and maintenance of GM diesel engines have been planned and scheduled throughout 1960. Special two-week power generator programs are included in this year's schedule. Copies of the schedule can be obtained from GM diesel distributors and dealers.

Koehring Div., Koehring Co., Milwaukee, Wis., has designated Critzer Machinery Co., 106 Sheldon Road, Berea, Ohio, as its distributor for northern Ohio. Critzer Machinery will sell and service Koehring crawler-mounted and rubber-mounted cranes and excavators; concrete pavers; longitudinal and transverse finishers; Dumptors; and Mud-jacks. Its territory takes in 32 northern Ohio counties lying roughly north of a line through Lima, Mansfield and Canton. Paul Critzer, president of the newly organized firm, is a native of northern Ohio and well known in the construction industry in that area.

LeTourneau-Westinghouse Co., Peoria, Ill., has announced that Robert S. Marshall is the new district representative for L-W products in upstate New York and the province of Quebec. Marshall will serve distributors in Syracuse and Buffalo, N. Y., and in Montreal, Quebec. He joined L-W in 1952 as an instructor in the service training school. In 1956 he transferred to the export service department, and in 1959 he was promoted to the domestic sales department as assistant to the eastern sales manager. He has served in this capacity until assuming his present position. Marshall's new headquarters will be in Syracuse.

There's a reason WHY in MacWHYte Wire Rope*

It brings out the best in your equipment!

Just as you use specialized equipment for a particular job, it pays to use the right kind of wire rope designed for that equipment.

All wire rope isn't the same. There are changes in the construction of wire rope . . . which aren't obvious to the eye . . . but can seriously affect the way it will work on your equipment. Because all equipment isn't the same, different types of rope are required because of basic design variations.

With this in mind, you can see the reason "why" Macwhyte offers such a wide variety of wire rope:

* Every foot of wire in Whyte Strand is specially drawn, cold-worked by Macwhyte in their own wire mill. Complete processes — from raw material to finished wire for rope — are under the watchful eyes of Macwhyte metallurgists.

* Special lubrication is available in accordance with the needs of the equipment or the type of service in which the rope will be used. The tenacious lubricants provide just the necessary protection — are unaffected by heat or cold, dry or wet conditions.

* Product engineers determine the exact number, size, and relationship of the wires needed to meet the requirements of your equipment. You're sure of the correct size, strength, and flexibility.

* Entire wire and rope mill operations are concentrated on the making of wire rope in a thousand and one sizes, grades, and types . . . to give you the rope you need.

Result: Whyte Strand wire rope is literally "custom made" for shovel hoist rope, dragline, clamshell crane rope, boom hoist line, dozer rope, scraper rope, contractors' hoist and derrick rope, overhead cranes, cableway excavators, and winch lines. If you'd like to check the type of rope recommended for your equipment, send for bulletin 5702 — free for the asking.

191

MACWHYTE Wire Rope COMPANY

2900 Fourteenth Avenue, Kenosha, Wisconsin, U. S. A.

JOB REPORT ON TWO CAT NO. 619 TRACTORS WITH MATCHING NO. 442 LOWBOWL SCRAPERS...

Good maneuverability, power and acceleration!

Hauling, as well as dumping close and maneuvering in tight quarters, the No. 619-No. 442 is proving its worth on the Park Hill Subdivision, Colorado Springs, Colorado. Typical performance pushloaded by a D8: On a 3700-foot round-trip haul, the No. 619-No. 442 averages 3.38-minute cycles and handles 15 to 16 bank yards per load for production of 220 bank yards an hour.

Alexander Construction Company is using two Caterpillar No. 619-No. 442 rigs for dirt work on the Park Hill Subdivision, Colorado Springs, Colorado. The project, which covers 340 undeveloped acres, will one day have 1232 homes. About 2,000,000 cubic yards of damp sandy loam are involved in the section where the machines are now shaping land, and the job calls for a great deal of close dumping and maneuvering in tight quarters. Operator Clarence B. Kusma sums up the No. 619s' performance this way: "They handle good. Turn short. Have well-located controls. Get up to 5th gear in about 1000 feet on the flat."

On this project, as on other projects, the No. 619-No. 442 is living up to its advance notices as an excellent "all job" rig. Here are some reasons why. Its Turbocharged Cat Engine provides 225 HP and high torque rise, ideal for lugging under load and for fast acceleration. Its LOWBOWL Scraper handles 14 cu. yd. struck, 18 cu. yd. heaped. It has 30 MPH usable operating speed, plus ground-hugging roadability never before found in a two-wheel tractor of comparable size. New 2-jack hydraulic steering makes it extremely easy to maneuver, yet retains that important "feel of the road" touch. And advance design permits full 90° turns and a turning diameter of 30 feet.

Get the full facts about the "all job" No. 619-No. 442 from your Caterpillar Dealer. Compare it with any two-wheel tractor of similar size for money-making performance. Ask for a demonstration—see for yourself how you can make use of its versatility to step up production on your job!

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

CATERPILLAR

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NO. 619-NO. 442 FOR "ALL JOB" VERSATILITY